December 15, 1958

Paper Trade Journal

International Paper's Pine Bluff Newsprint and Bleached Board Mill Incorporates Latest Technical Advances

New Canadian Prairie Plant Produces Insulating Board from Straw and Hardboard from Wood Chips

New Comprehensive Paper Finishing Machine Being Evaluated at S. D. Warren, Cumberland Mills, Maine

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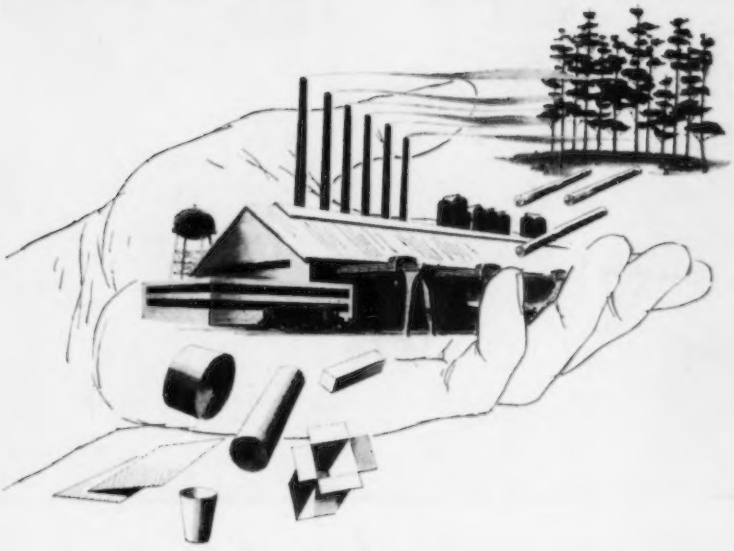

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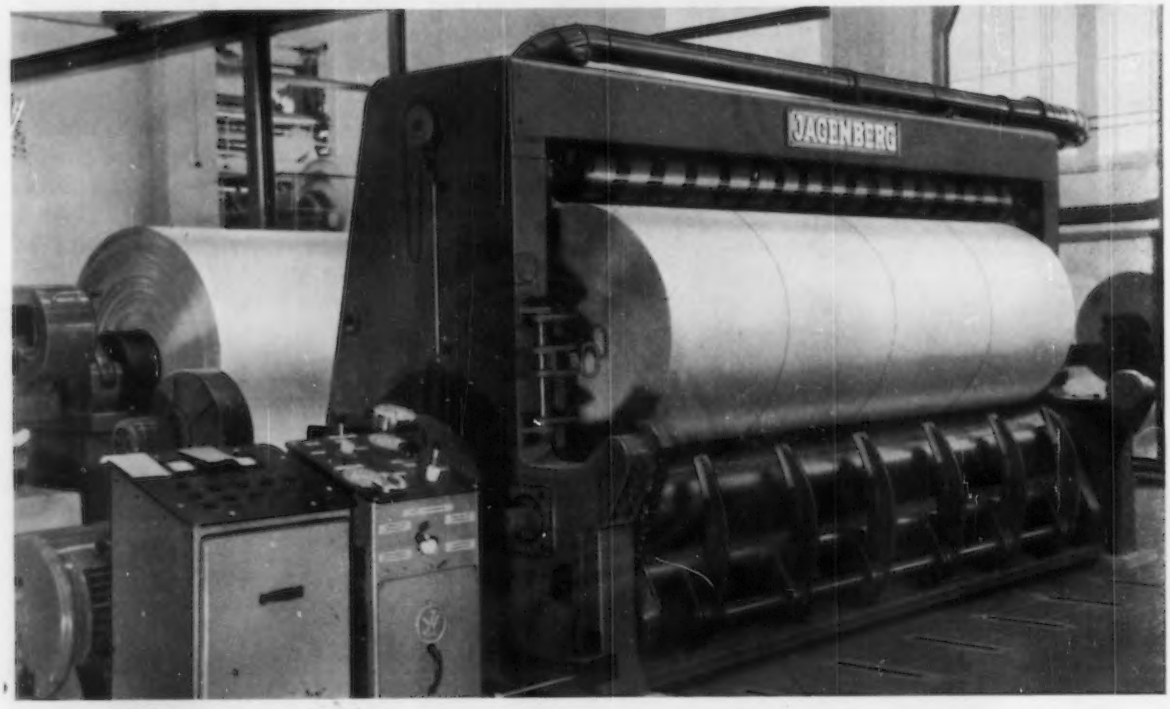

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PAUL D. VAN DERVEER
Associate Editor

R. E. THUEMMES
Associate Editor

V. B. HAWKINS
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Jan. 28-30, 1959: Canadian Pulp and Paper Assn. Annual Meeting, Queen Elizabeth Hotel, Montreal

Feb. 23-26, 1959: Paper Week in New York

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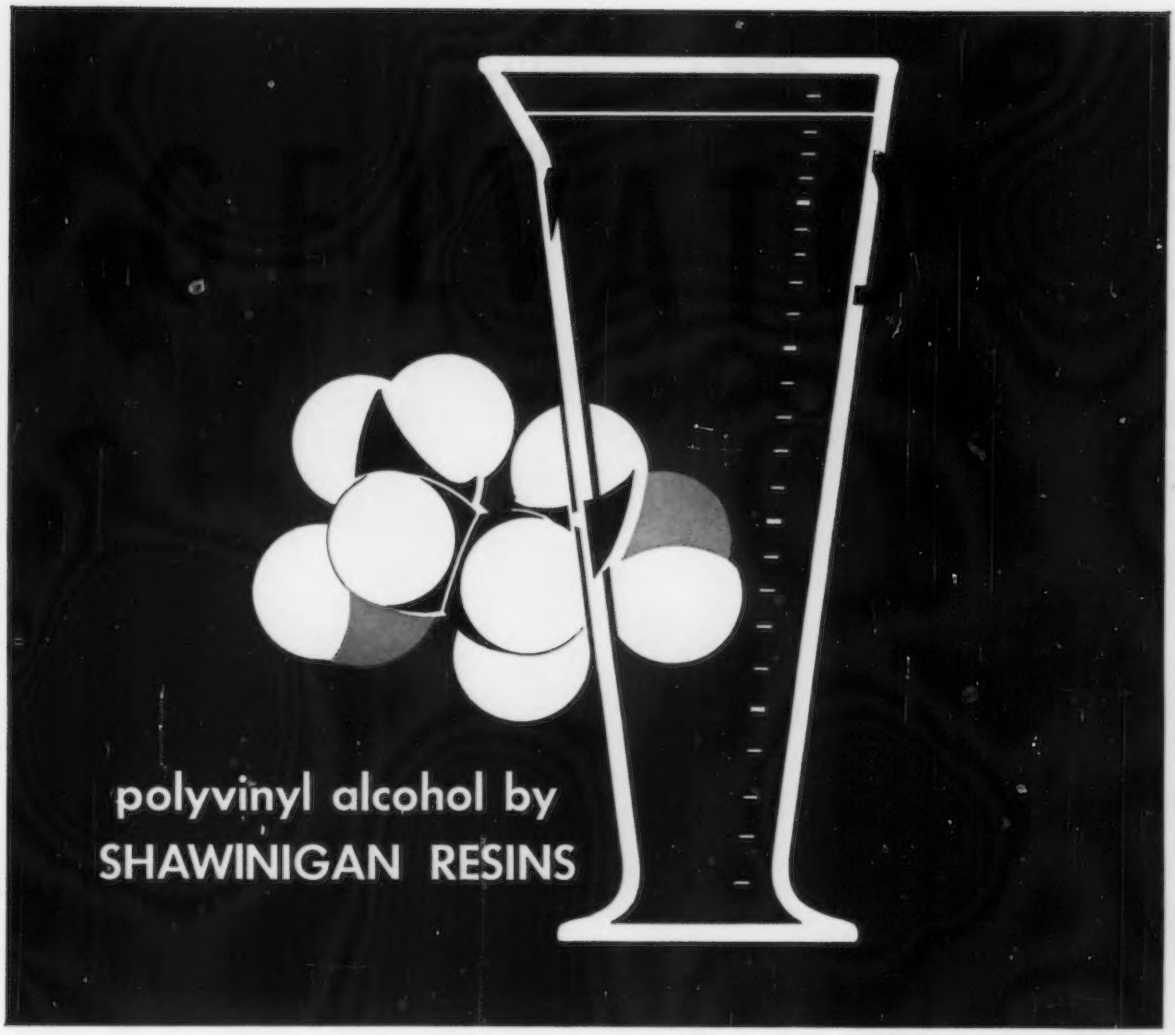

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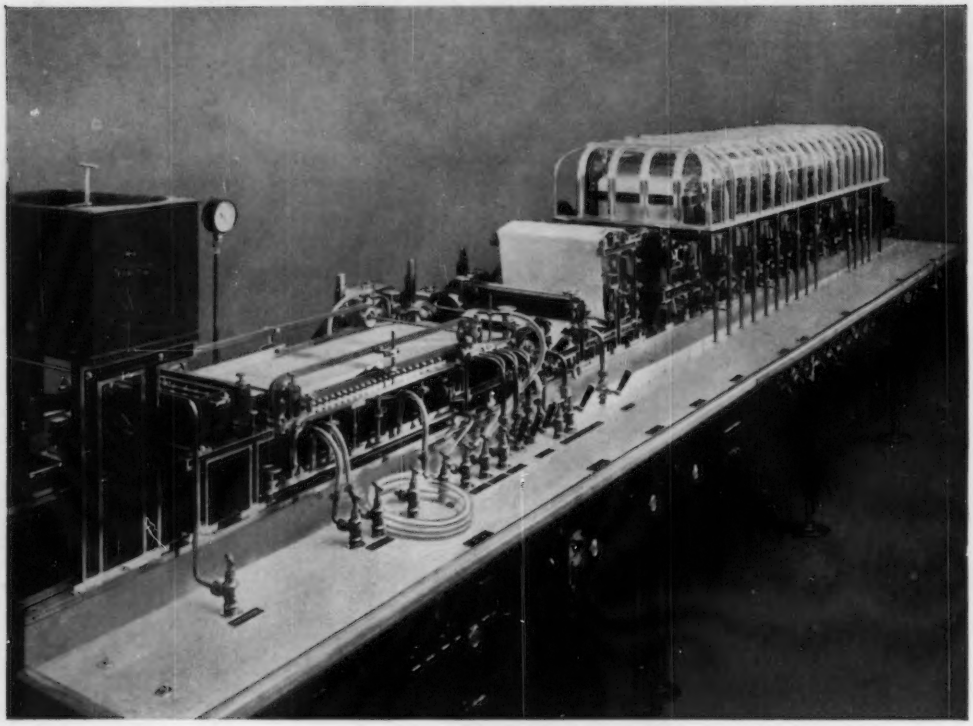

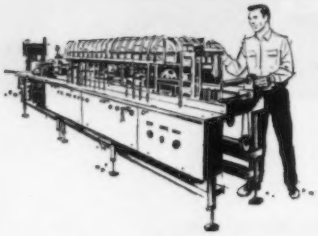

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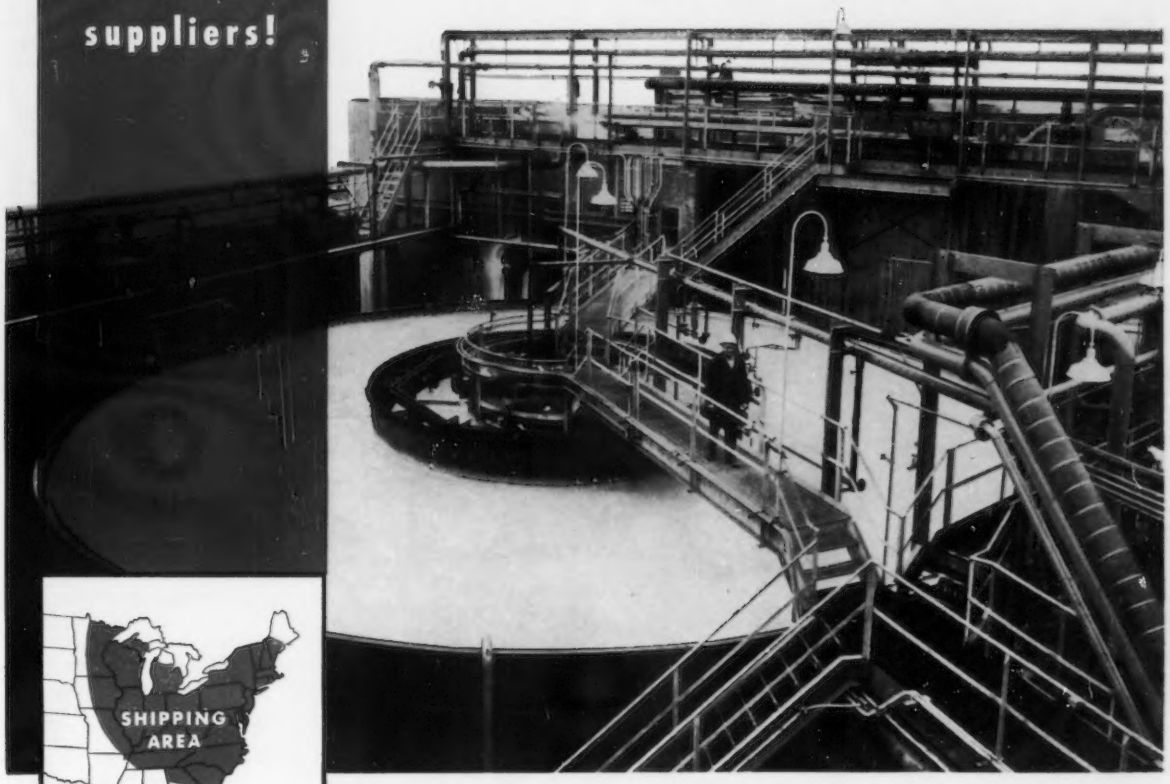

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One in a series of interviews with the men who are "Virginia"

"Combination bleaching of mechanical pulp—following peroxide with a hydrosulfite—can give you brightness gains of 15 to 20 points"

Robert Barton, a technical representative for Virginia Smelting Company, discusses the advantages of 2-stage bleaching from the standpoint of costs and results.

Robert Barton, a "Virginia" technical representative

Q Why does 2-stage bleaching give more brightness gains?

A Because the action of peroxide and hydrosulfite on pulp is not the same. Each gains its effect in a different way, and while there is some overlap in their action, there is a very worth-while cumulative effect. In other words, where you can reasonably expect a brightness gain up to 12 points using either bleach alone, the two bleaches used consecutively jump the results to anywhere from 15 to 20 points.

Q What are the advantages of 2-stage bleaching?

A Lower costs and better results—especially if the mill is now using some agent other than hydrosulfite for its single-stage bleaching. The big financial advantage in switching to a combination bleach goes to the pulp mill now using a single stage of peroxide.

Q How does the 2-stage bleach cut costs?

A The principle is to use as little of the more expensive peroxide as possible. The first stage is a bleach with peroxide. Follow this with a hydrosulfite bleach and you have cut the heart out of bleaching costs, at the same time stepping up the quality of the final product. Higher brightness and lower costs are the main reasons why 2-stage bleaching is becoming increasingly popular.

Q Can this process be applied to any kind of pulp with the same results?

A No, the response varies slightly with the wood from which the pulp is made. Good results have been obtained with spruce, poplar and pine groundwood pulps and with a large number of semimechanical pulps made from many species of caustic or sulfite pretreated hardwoods. Mixtures of chemical and mechanical pulps also respond favorably.

Q How can pulp manufacturers find out whether or not the 2-stage bleach will be advantageous to them?

A Simply by calling on the services of "Virginia." We can bring our lab equipment right into a mill, make tests, and demonstrate the possibilities of 2-stage bleaching under practical operating conditions. We will lend the mill any necessary equipment, find a spot in the system where the hydrosulfite stage can be inserted, and help run a mill trial. If the 2-stage process proves desirable, we will stay on the job and help iron out any technical problems that might arise. Under circumstances like these a pulpmaker can easily see where costs are being cut—and examine the improved final product with his own eyes. This is the kind of technical service on which "Virginia" has built its reputation.

• • •

For more information on 2-stage bleaching with "Virginia" zinc or sodium hydrosulfite, write us giving any technical data that may help us evaluate your problem. We will forward technical literature and run laboratory tests provided you furnish us fresh pulp samples. Or, if you say so, we will have a "Virginia" man call and talk over your requirements with you.

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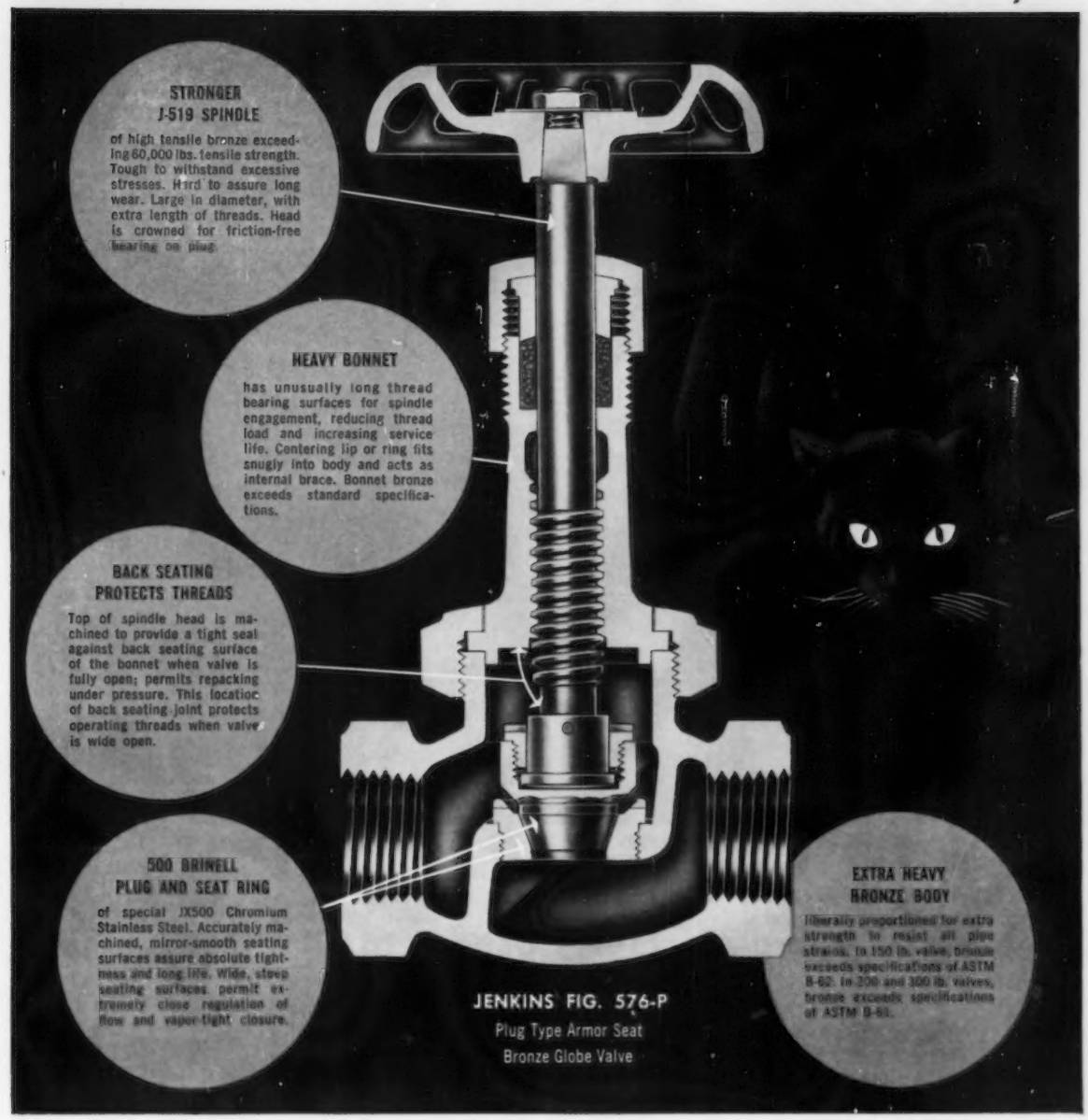
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JENKINS FIG. 576-P
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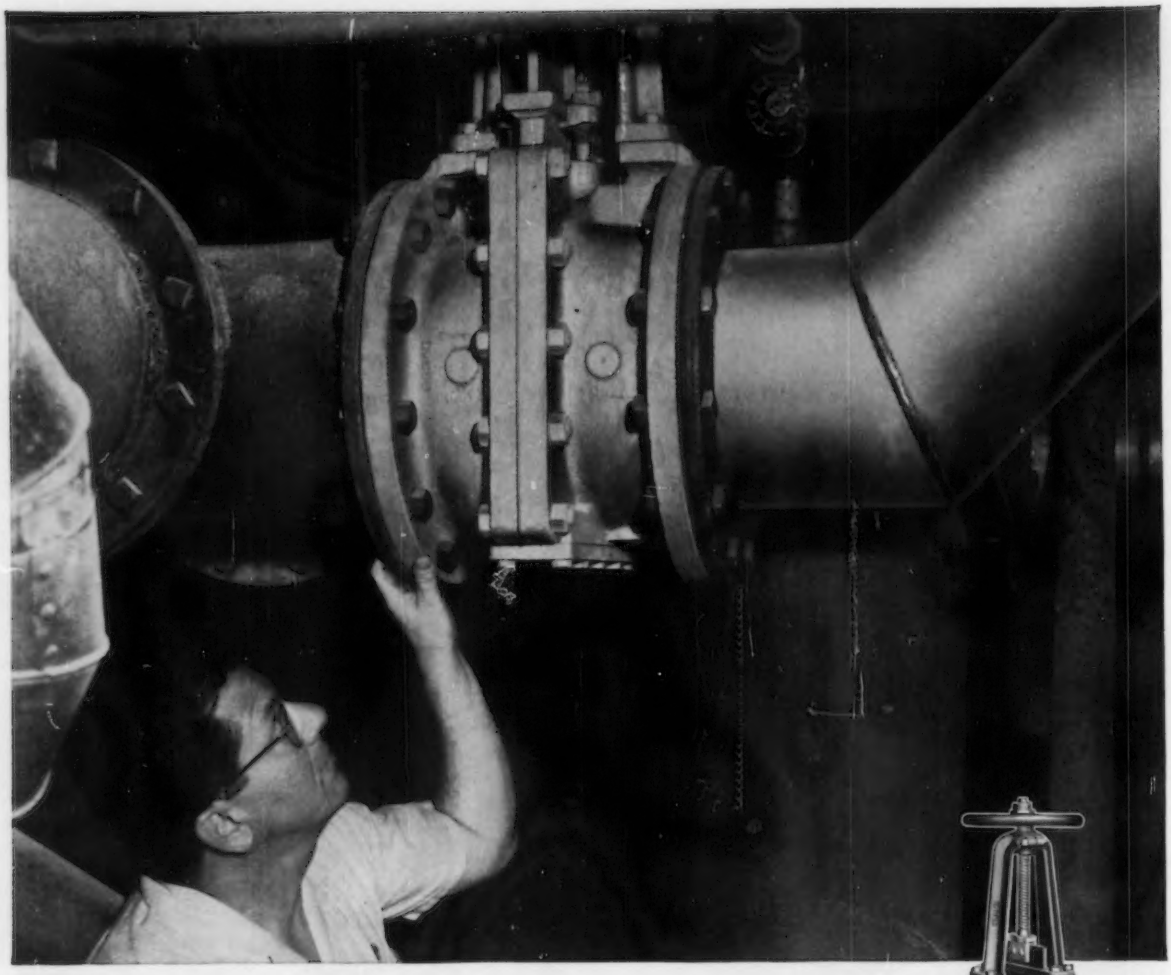


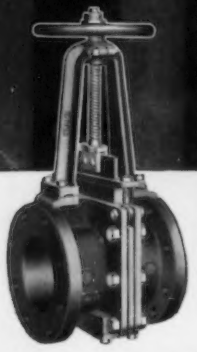
Crane pulp stock valve in use 8 years —outlasts valves formerly used 4 to 1

Until eight years ago this midwest paper mill had to replace the valve on a sulphite stock line about every two years. This valve, which controlled pulp stock flow from storage tank to screens, was located in a hard-to-reach spot beneath the mill floor. As a result, when maintenance or repairs were needed, which was frequently, or the valve had to be replaced, costs ran high.

In 1950 the 12-in. Crane rubber-lined pulp stock valve shown above was installed. This valve has served eight years without maintenance or repairs—has already outlasted the valves formerly used 4 to 1! And it is still in service!

Would you like to know more about Crane pulp stock valves that can help cut your operating and maintenance costs while giving better flow control?

Get the facts from your Crane Representative on his next call, or write to address below for descriptive circular.



Crane No. 1448 Rubber-Lined Pulp Stock Valve—for corrosive conditions. Deep notches at bottom of outlet port "comb" pulp fibers into small bunches for easy shearing by the knife-edge disc. Fibers are cut through cleanly; disc closes tightly. 3/16-in. hard natural rubber body lining resists effects of corrosive fluids. Sizes: 4 in. to 24 in.

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The process can be applied to all typical cold caustic pulps, and Becco is prepared to assist you immediately in setting up a production run and evaluating results. If you would like to have a Becco Technical Representative call, with no obligation on your part, write us at: Dept. PTJ-37.

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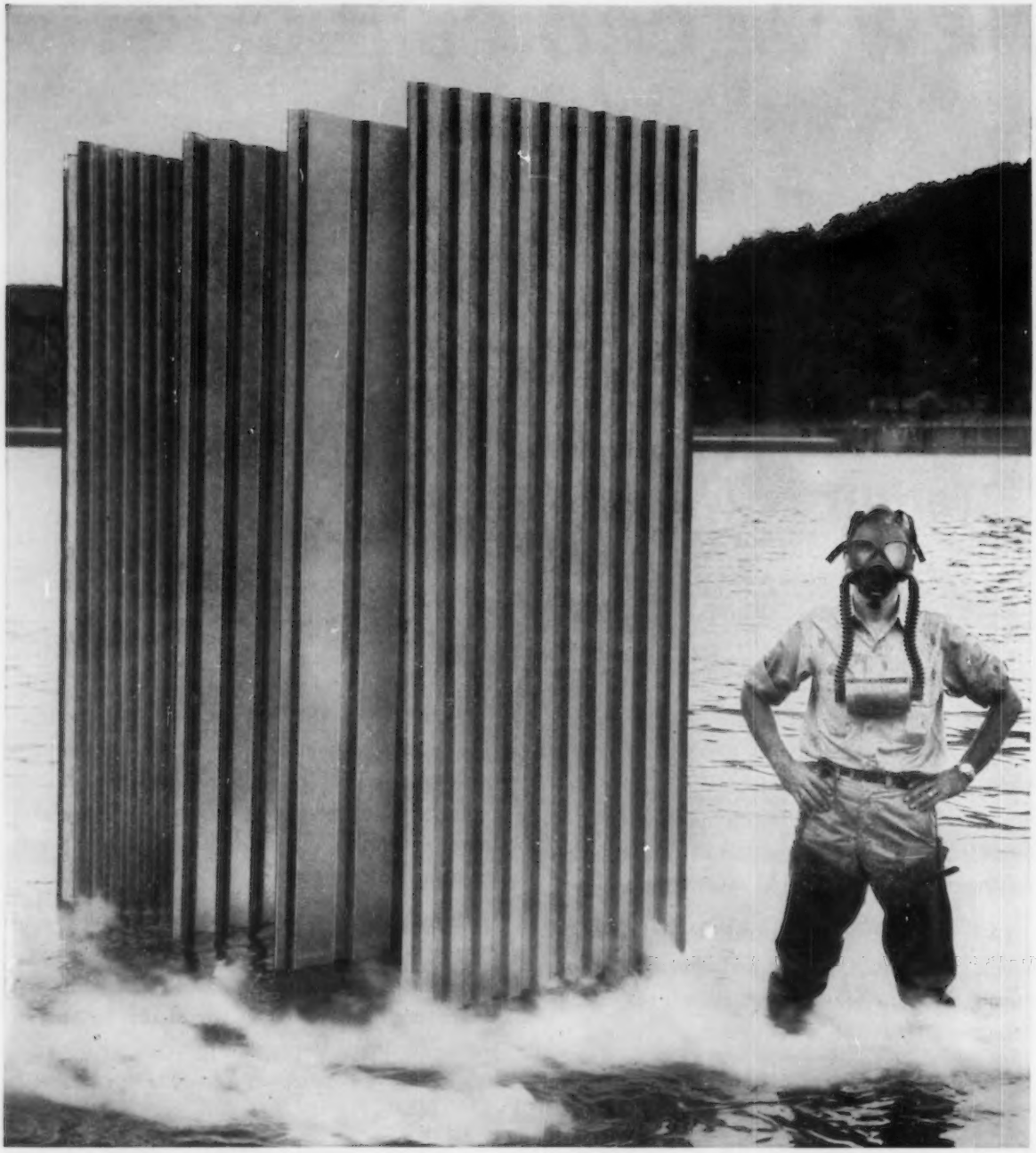

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Total Solids Content	47 ± 1.0
pH	8.0 ± 0.5
Surface Tension	30-36 dynes/cm.
Viscosity (Brookfield at 25°)	150 ± 50
Mechanical Stability	Excellent

Physical Properties

Specific Gravity	1.01
Weight/gal.	8.43 pounds
Refractive index (D^{25C})	1.530
Film properties	Clear and glossy
Adhesion	Excellent
Particle size	900 Angstroms 0.09 Microns

GEN-FLO® 62 styrene-butadiene latex for casein or starch coating formulations

Specifications

TSC, % by weight	48 ± 1.0
pH	10 ± 1
Surface Tension (dynes/cm)	28-32
Residual styrene, %	0.05 max.
Brookfield Viscosity, cps	15-25
Mechanical Stability	0.1 max 100 mesh screen

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Lbs/gal—solids	8.51
Particle size—Angstroms	1500-1800
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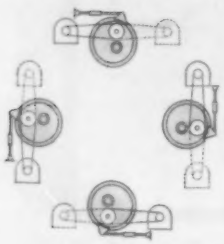
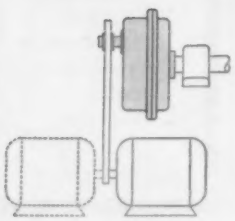
SEVEN SIZES—½ to 50 HP—420 to 5 rpm—single and two double reduction ratios—output torque ratings up to 31,500 lb-in.

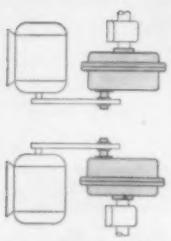
A few of the many ways this reducing unit can be applied—



ANY POSITION



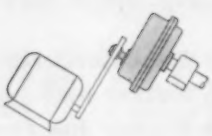
MOTOR EXTENDED —or below the unit



VERTICAL—UP or DOWN

VARIABLE SPEEDS... through use of variable-pitch sheaves—automatic belt adjustment with tie-rod adjustment

OVERLOAD RELEASE... that will slacken belts and cut off power if overload occurs



INCLINED SHAFT... Any standard unit can be mounted in vertical or inclined position by a simple rearrangement of oil drains

To Plant Engineers:

The versatility of the Falk Shaft Mounted Drive makes it the practical choice for many machines in your plant.

This compact unit mounts on the driven shaft, thereby solving many problems of restricted space. You can obtain almost any output speed between 420 and 5 rpm by selecting the proper single or double reduction unit and the proper sheave or sprocket ratio.

Do you need both horizontal and vertical drives? Standard Falk Shaft Mounted Drives are available for either application; or you can easily convert a horizontal unit to a vertical unit, right in your plant. Initial cost is low, you get immediate delivery from shelf stock, and installation is quick and easy.

★

FALK Shaft Mounted Drives are available from factory and distributor stocks *from coast to coast.* See your Falk Representative or Distributor—or write direct for your copy of **Bulletin 7100.**

THE FALK CORPORATION, 3001 W. CANAL ST., MILWAUKEE 1, WIS.

Representatives and Distributors in Most Principal Cities

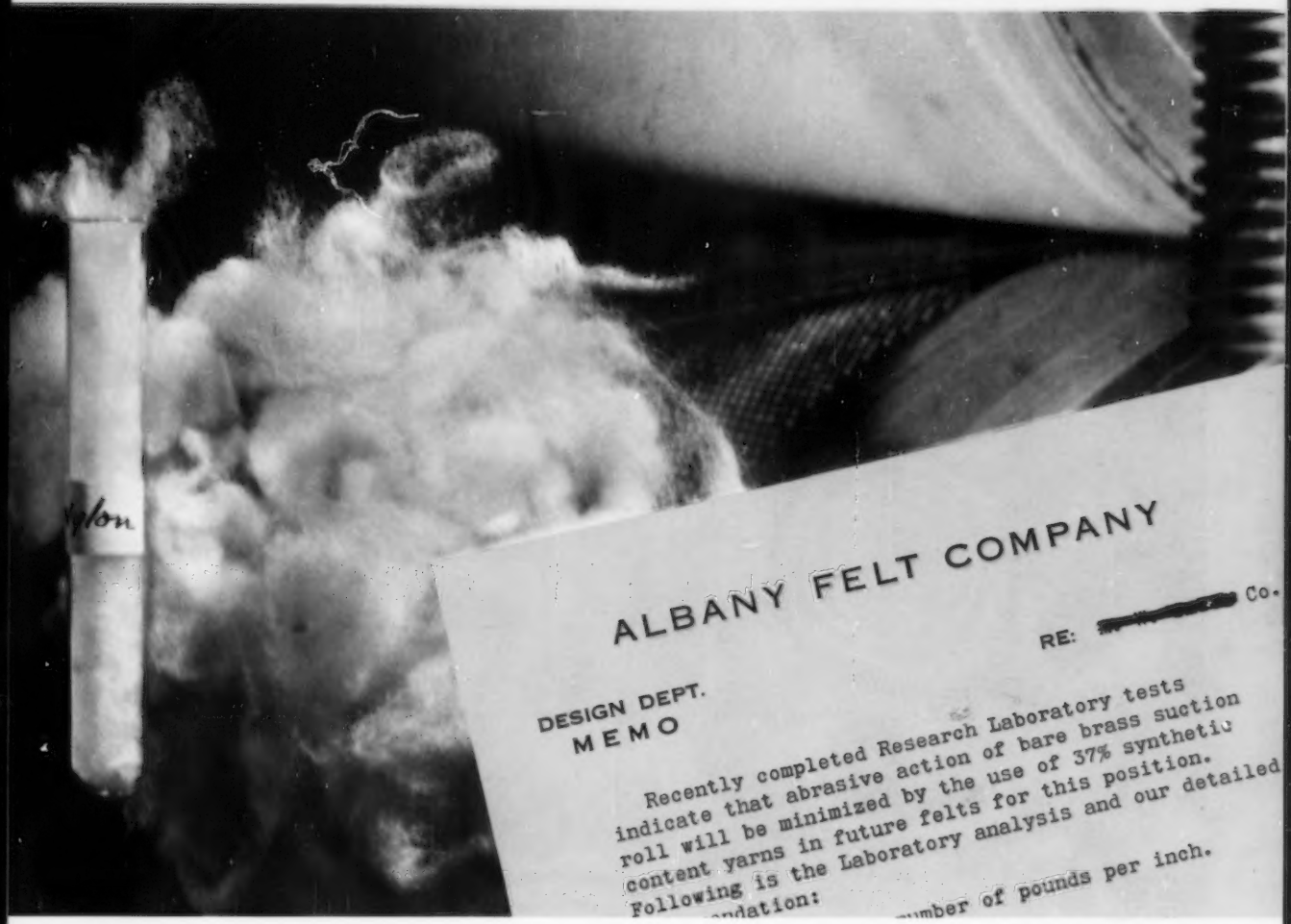
Manufacturers of

- Motoreducers
- Speed Reducers
- Flexible Couplings
- Shaft Mounted Drives
- High Speed Drives
- Special Gear Drives
- Single Helical Gears
- Herringbone Gears
- Marine Drives
- Steel Castings
- Weldments
- Contract Machining

FALK

...a good name in industry

WHERE EVERYTHING STARTS WITH RESEARCH


ALBANY FELT COMPANY
RE: [redacted] Co.
DESIGN DEPT.
MEMO
Recently completed Research Laboratory tests
indicate that abrasive action of bare brass suction
roll will be minimized by the use of 37% synthetic
content yarns in future felts for this position.
Following is the Laboratory analysis and our detailed
mber of pounds per inch.

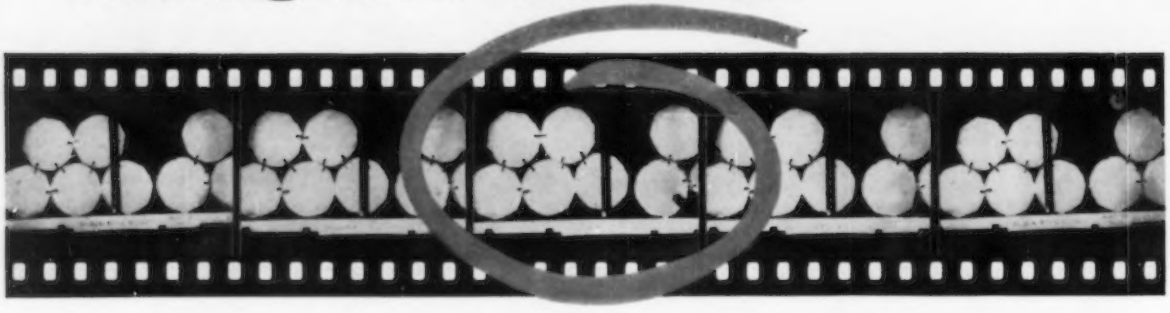
TAKE SYNTHETICS...

A dozen years ago, Albany's laboratories produced—and patented—the first synthetic-content felts ever made. Since then, constant research and on-the-machine experience have provided Albany with the industry's most complete bank of knowledge on the *correct* use of synthetics. This includes an awareness that synthetics are NOT an automatic cure for ALL felt problems. Every individual problem or production goal is thoroughly analyzed before a "prescription" is made. But when synthetics *are* the answer, you can be sure that a synthetic-content felt from Albany will do the job better. It stands to reason! We never lose sight of "The Big Picture" . . . helping *you* produce more saleable tons per day.

ALBANY FELT COMPANY
MAIN OFFICE & PLANT, ALBANY, N.Y.
OTHER PLANTS: HOOSICK FALLS, N.Y.; N. MONMOUTH, ME., ST. STEPHEN, S.C.; COWANSVILLE, P.Q.

NEW IDEAS FOR BETTER PAPERMAKING—FROM THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS

Waiting for... WHAM!



1600-pound rolls of paper bounce several inches into the air when impacted in Signode's open-sided test car. Methods developed by tests like these save thousands of dollars for Signode customers—and *their* customers—by reducing damage losses and cost of dunnage.

Signode offers unparalleled experience and test facilities to help shippers reduce damage to shipments by rail, highway, or water...of paper in rolls, on bilge or on end, or of paper on skids or expendable pallets. We would like very much to give you a hand toward better carloading. It will pay you to call the Signode man near you, or write:

First in steel strapping

SIGNODE STEEL STRAPPING CO.

2677 N. Western Avenue, Chicago 47, Illinois

Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide
In Canada: Canadian Steel Strapping Co., Ltd., Montreal • Toronto

Paperboard products get a real lift with TITANOX*. Packaging with greater point-of-sales appeal . . . book and magazine stocks with greater contrast and less show-through . . . opacified glassines and waxed papers with high legibility—all share in the matchless whitening, brightening and opacifying power of TITANOX titanium dioxide white pigments.

To achieve these results, papermakers can choose from among such white pigments as TITANOX-A-WD, TITANOX-C-50, or TITANOX-RA-50. Whether used at the beater or in the coating, TITANOX white pigments insure easy mixing, complete dispersion and uniformity of all properties. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities.

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

*TITANOX is a registered trademark for the full line of titanium pigments offered by Titanium Pigment Corporation.

5729

For you or your consulting engineer . . .

COORDINATING "umpteen"

Save Time, Save Money, with

Products for Pulp and Paper . . . Pumps (rotary vacuum and centrifugal), Motors, Control, *Texrope* Drive Equipment, Screens, Slakers, Kilns, Turbine-Generators, Condensers, Switchgear, Water Conditioning Equipment, plus Material Handling Equipment.

A-C ALLIS-CHALMERS

A-5796

different suppliers is costly!

"Teamed" Equipment

TAKE a variety of suppliers, each with a product you need — pumps, control, motors, kilns, power units, etc. This combination of suppliers adds up to long conference hours coordinating equipment design, delivery schedules and erection services. Remember, too, phone calls, telegrams, and voluminous correspondence!

NOW TAKE ALLIS-CHALMERS. One inquiry and most of the equipment for any area expansion is available. Once your A-C representative is called in, he goes to work with the Allis-Chalmers Pulp and Paper Industry Application Section.

From this group comes thoroughly coordinated product engineering — specifically developed to match a broad line of A-C products to your special requirements. The results: savings in time, savings in cost, coordinated delivery scheduling, and assurance of "teamed" equipment backed by outstanding and continuing field service.

FIND OUT MORE about product coordination from your A-C representative, or write Allis-Chalmers, Milwaukee 1, Wisconsin.

Texrope is an Allis-Chalmers trademark.

ALLIS-CHALMERS

POWELL

world's largest family of valves

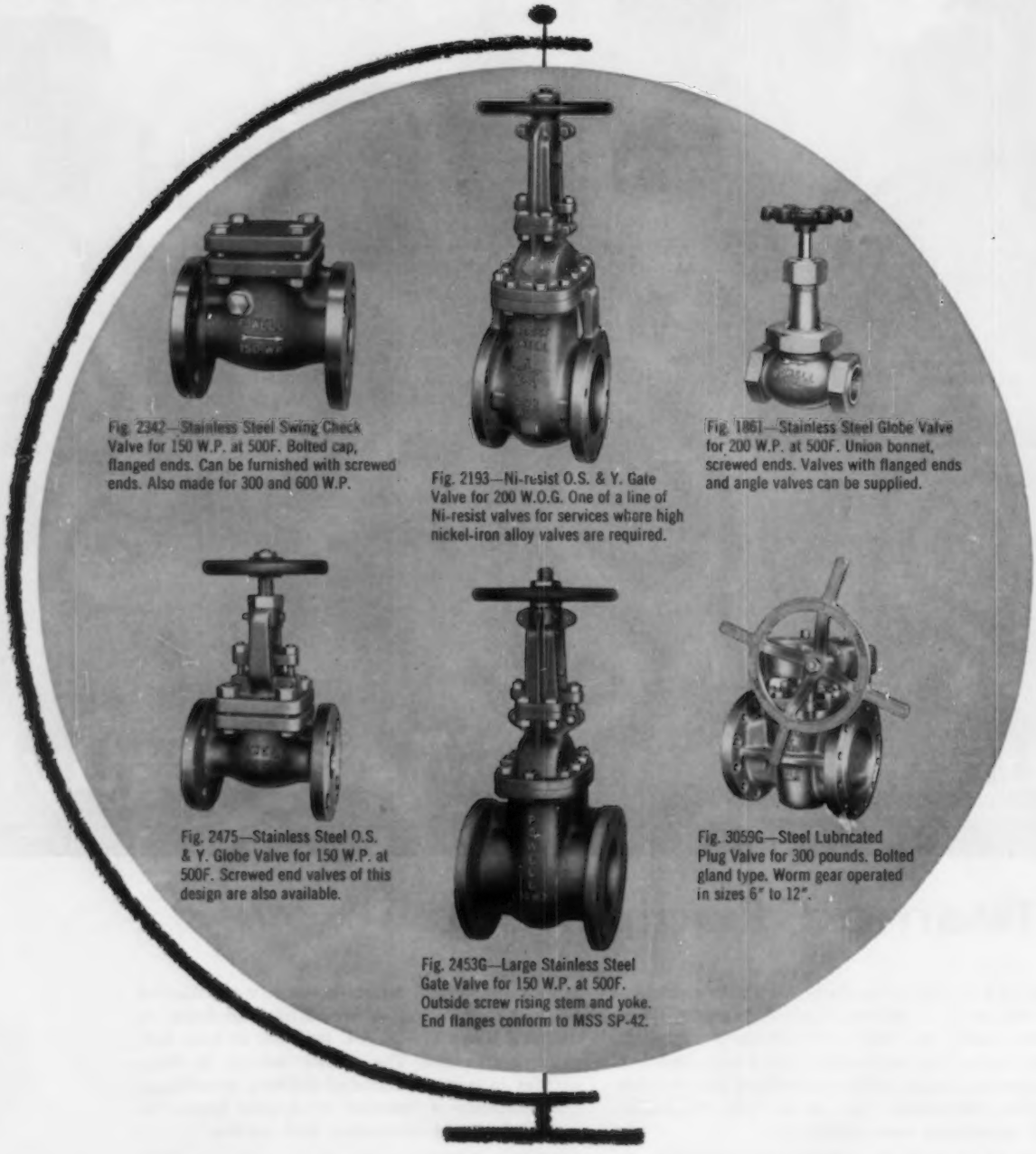


Fig. 2342—Stainless Steel Swing Check Valve for 150 W.P. at 500F. Bolted cap, flanged ends. Can be furnished with screwed ends. Also made for 300 and 600 W.P.

Fig. 2193—Ni-resist O.S. & Y. Gate Valve for 200 W.O.G. One of a line of Ni-resist valves for services where high nickel-iron alloy valves are required.

Fig. 1861—Stainless Steel Globe Valve for 200 W.P. at 500F. Union bonnet, screwed ends. Valves with flanged ends and angle valves can be supplied.

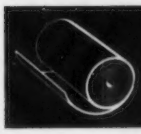
Fig. 2475—Stainless Steel O.S. & Y. Globe Valve for 150 W.P. at 500F. Screwed end valves of this design are also available.

Fig. 2453G—Large Stainless Steel Gate Valve for 150 W.P. at 500F. Outside screw rising stem and yoke. End flanges conform to MSS SP-42.

Fig. 3059G—Steel Lubricated Plug Valve for 300 pounds. Bolted gland type. Worm gear operated in sizes 6" to 12".

FOR EVERY FLOW CONTROL PROBLEM Powell offers more kinds or types of valves, available in the largest variety of metals and alloys, to handle every flow control requirement. Your local valve distributor will be glad to tell you all about them. Or write to us for the full facts.

THE WM. POWELL COMPANY • *Dependable Valves Since 1846* • **Cincinnati 22, Ohio**



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SEE NAUGATUCK FOR ANY LATEX NEED

PAINT
LEATHER
TEXTILE
ADHESIVE
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Paper makers the nation over have found it *pays* to deal with the nation's foremost supplier of both natural and synthetic latices.

Naugatuck's unique experience in the development and application of latices for coating, laminating, binding, and saturation makes Naugatuck *your* best source for any latex need.

Whatever your product, process, or problem, if it's in the field of latex, it's in Naugatuck's backyard. Why not call upon Naugatuck now.

Complete technical brochure—5 types of Naugatuck Latex—available free on request from your nearest Naugatuck office.

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United States Rubber

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A NAME TO REMEMBER

. . . for pitch dispersing
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. . . for size stabilizing
. . . for coating fluidizing
. . . for uniform dyeing

You will find it profitable to get all the facts about Nopcosant —Nopco's newly improved dispersant and solubilizer. Ask your Nopco representative for full details or write for complete information.

Remember, too, back of Nopco paper chemicals stands Nopco technical service—ready to assist with laboratory data and recommendations based upon your specific requirements. Nopco Chemical Company, 60 Park Place, Newark 1, N.J.

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Plants:
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Properties of Nopcosant

- A fine powder of uniform particle size
- Dusts less than any other similar product
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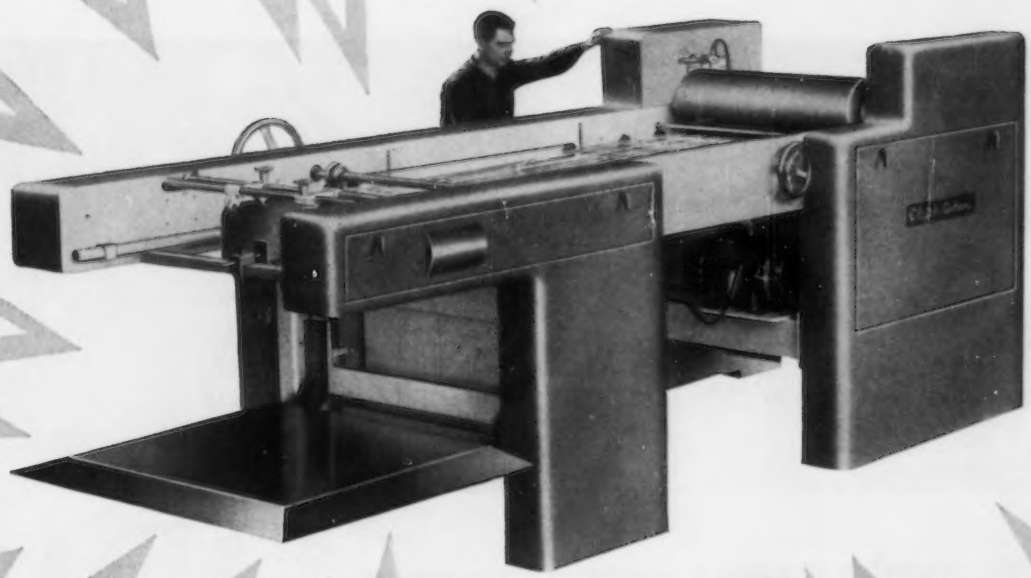
- The most nearly neutral *p*H in its chemical class

Clark-Aiken's NEW TYPE "G" CUTTER

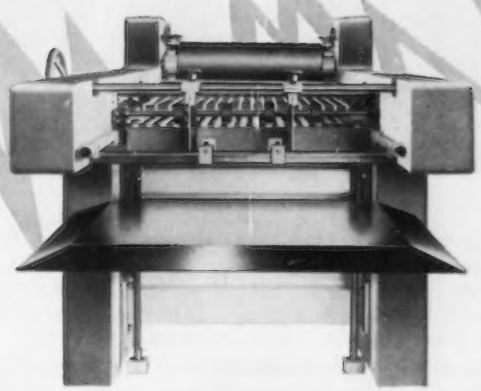
for fast economical finishing room automation

Amazing versatility in registration or general purpose sheeting that means greater efficiency at lower operating costs.



If you want precision sheeting at high speeds let Clark-Aiken engineers show you how you can achieve this goal, and still cut production costs, with the new Type "G" Cutter. And here is convincing proof of why the "G" Cutter combines top quality finishing room automation with economy:

- Complete sheet control with new type patented corrugated slice
- New shear type Clark-Aiken Slitters
- Speeds in excess of 1000 feet per minute (depending on paper type)
- Widths up to 46 inches
- Accuracy within ± .015 inch (depending on paper type and printed mark)
- Streamlined shrouding
- New high speed dynamically balanced cast semi-steel knife cylinder
- New screw type elevating system and overhanging piler
- High speed tape system with overlapping delivery
- Accurate piling with reciprocating jogger and new side and back joggers
- Fabricated heavy steel side frames for cutter, layboy and piler
- Air controlled pinch roll
- Patented minimum back lash double differential



Consult Clark-Aiken engineers for the complete Type "G" story. Write for the new two color brochure today.

THE Clark-Aiken COMPANY

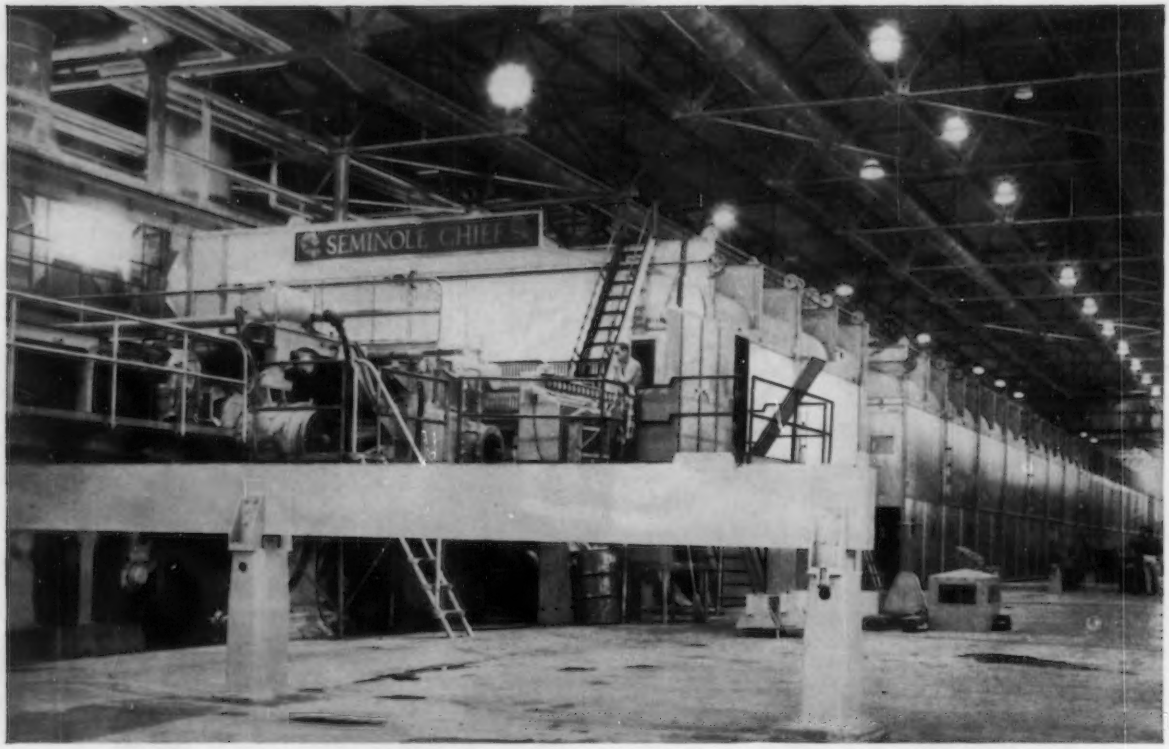
957 HART AVENUE

LEE, MASSACHUSETTS

ROLL COVERINGS

On the Seminole Chief—

50,000 square feet of paperboard per minute speed across U. S. Rubber covered rolls



The Seminole Chief produces a staggering tonnage of 1000 tons per day. Veteran papermakers are amazed at its sheer size, its up-to-the-minute equipment. St. Regis Paper Co. required the best in everything, and that meant "U.S." for the roll coverings.

One reason why paper makers specify "U.S." is *experience*. St. Regis, for example, has many years of continuous production experience with "U.S." Roll Coverings on its #1 machine.

The big reason then is the quality of the roll covering itself . . . its dimensional stability, strength and durability, chemical and water resistance, firm adherence to metal, uniform surface.

Technical service is another "U.S." feature. Factory-trained engineers, working out of local "U.S." branch offices are ready to help solve your roll-covering problems.

If you want rolls of this calibre—plus expert engineering assistance—contact roll-covering specialists either at your local "U.S." branch office, or write us at Rockefeller Center, New York 20, N.Y. In Canada, Dominion Rubber Co., Ltd.

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

Trends

9 Months Comparative Financial Data for Paper Companies

In the first nine months of 1958 net sales of 96 reporting companies were about 1% less than for the identical companies in the first nine months of 1957, while net profits after taxes were off more than 15% from a year ago. The percentage of net sales represented by profits after taxes was 5.9% in the first three quarters of 1958 as compared with 6.9% in the first three quarters of 1957. Industry sales in the third quarter of 1958 were slightly ahead of sales in the 1957 third quarter and profits in the third quarter of this year, while below last year's comparable profits, were nevertheless sufficient to make the nine-months profit picture for the over-all industry somewhat better when compared with the 1957 January-September period, than the 20% drop registered for the first half of this year. The comparison of the second and third quarters of 1958 shows a pick-up in sales of about 5% in the third quarter and an increase of approximately 10% in net income for both the over-all industry and the integrated companies. It is noteworthy that the non-integrated companies, which showed an increase of nearly 8% in net profit in the third quarter of 1958 over the comparable 1957 quarter, had third quarter profits this year just 2% ahead of the second quarter of 1958. (Source: APPA—Quarterly Capital and Income Survey) Coverage of this report has increased steadily over the past year and it now includes 96 companies, which account for nearly one-half of the total dollar sales of the paper and allied products industries.

Wood Pulp Production Up for October

Total wood pulp production in October was 5% ahead of October last year. Production for the first ten months is off 2% from the same period in 1957, according to the U.S. Pulp Producers Ass'n. October figures compared with a year ago show: produced for own use up 5%, domestic shipments off 4%, foreign shipments up 28% (to Canada —4%, to Europe +47%, to Latin America —37%, to Asia and Africa +132%).

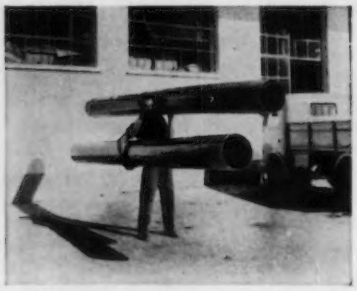
Paper Towel Growth Phenomenal

Over 85 billion paper towels will be consumed in the United States this year—500 paper towels for every man, woman and child—as the product starts the second fifty years of its existence. According to the Tissue Assn., Inc. it was in 1907 that an enterprising paper merchant convinced a local school teacher of the sanitary value of sheets of paper to dry the childrens' hands. By 1929, 11 billion towels were being sold in this country. During the depression years the industry doubled its sales. During the war years, under the forced draft of a mobilized economy, the demand for paper towels doubled again. Since the end of World War II, technical research and intensive product development have enabled paper towel producers to continue this amazing geometric progression of growth, and the use of paper towels has doubled once more. Even during 1958, when most industries have watched their volume fall off, 4.3% more paper towels were sold during the first ten months than during the comparable period last year.

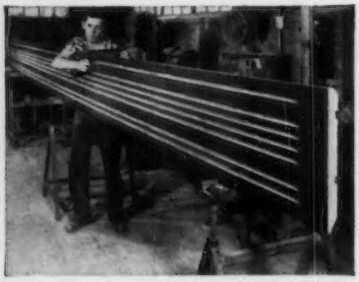
REPORT FROM RYERSON
on Services and Products in Stock

In addition to the products shown below, you can call on Ryerson for flame-cut steel shapes, fabricated steel for reinforced concrete or steel frame construction—many other products and services. And equally important are the specialists who carry out the Ryerson quality control program —see that customers specifications are *exactly* met, that every order is correctly filled and promptly delivered. As a result you get unequalled service and certified quality when your company calls Ryerson for steel, aluminum, industrial plastics and machinery.

STAINLESS STEEL—Allegheny stainless in over 2,221 sizes, shapes, types, finishes: sheets, plates, bars, pipe, etc.



INDUSTRIAL PLASTICS—PVC pipe, fittings, sheets and rods, rigid Kralastic and flexible polyethylene pipe.



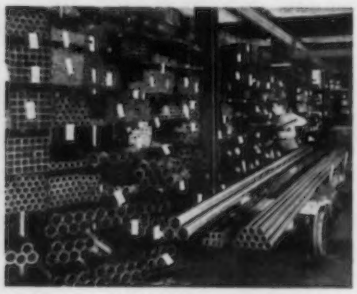
RYERTEX COVERS & BEARINGS
Suction box covers, bearings, etc. of low friction phenolic compositon.

CARBON STEEL & ALLOY BARS
Most complete range of types, shapes and sizes as well as largest tonnage.

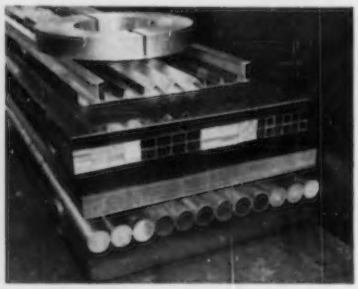
STRUCTURALS—I-beams, H-beams, channels, angles, tees and zees—all high quality steel to ASTM spec. A-7.

PLATES—14 types including special low carbon steel plates for forming and welding, leaded New E-Z-Cut, etc.

SHEET STEEL & STRIP—More than 20 different types in pattern sizes, cut-to-order sizes, strip coils, etc.



TUBING—Seamless and welded steel tubing—mechanical tubing, fluid line, pump cylinder and structural tubing.



ALUMINUM—At many Ryerson plants —sheets, coils, plates, bars, tubing, architectural and structural shapes, etc.

RYERSON STEEL®

Member of the INLAND® Steel Family

Principal Products: Carbon, alloy and stainless steel—bars, structurals, plates, sheets, tubing—aluminum, industrial plastics, metalworking machinery, etc.

Dexter Acquires Standard Insulation

On December 1, C. H. Dexter & Sons, Inc. of Windsor Locks, Conn. assumed ownership of Standard Insulation Co. of East Rutherford, N. J. and will operate it as a wholly owned subsidiary, under the name of Standard Insulation Co., Inc. Acquisition of Standard Insulation is Dexter's first major step in a long range plan for corporate growth through product diversification.

Standard Insulation specializes in the coating, lamination and impregnation of paper, fabric, glass cloth and foil. It is one of the nation's largest producers of materials for bottle cap liners. In addition Standard Insulation has developed a wide variety of resin preimpregnated material identified as "Stanpreg" for use in aircraft, missiles, electrical laminates and other reinforced plastic applications.

C. H. Dexter & Sons is one of the oldest specialty paper mills in the country. Founded in 1767, they have pioneered many unusual papers and webs for industrial use. In addition to natural fibers, they have been successful in processing glass, rayon, nylon and other synthetic fibers not commonly associated with the paper making field.

Mr. Lewis C. Kleinhans will continue as Standard's president and general manager, the firm's plant and offices will stay in East Rutherford, N. J., and there will be no change in production or sales policies.

I. P. Planning Water Supply for Oregon Mills

Plans of International Paper Co. for one or more pulp and paper plants in Oregon apparently are a step nearer with the recent filing of three applications for water priorities in the state.

The applications are on file with the state engineer in Salem. The next move by International Paper, if it is to secure the priorities, is filing of maps and plans showing uses to which the water will be put. The state Water Resources Board then may issue one or more permits.

Two of the applications are for water from the Umpqua River system. The other is for water from the Williamson River in Klamath County. Each asked that 60 cubic feet per second be allotted for manufacture of pulp and paper.

One of the proposed withdrawal sites is on the North Umpqua River about two miles upstream from Winchester. A 2.7-mile-long pipeline would convey the water to a point north of Wilbur, where the plant presumably would be built.

A second proposed withdrawal site is on the main Umpqua just below Mill Creek west of Scottsburg. A 16½-mile pipeline would carry the water to a riverfront location at the northwest corner of Gardiner.

The third application, for withdrawal from the Williamson River, includes a mile-long pipeline. The site is near Chiloquin.

Shasta Mill Plans Active

General agreement has been reached on waste discharge requirements for the proposed $30,000,000 Shasta Pulp and Paper Co. plant near Fairfield, California.

J. S. Gorlinski, executive officer of the Central Valley Regional Water Pollution Board has reported the effluent from the plant will be pumped from three settling ponds near the plant into the Sacramento River several miles upstream from Rio Vista.

The company has acquired about 1,500 acres of land about midway between the river and Fairfield. Construction on the plant is not expected to begin for several years.

The Shasta mill as reported here previously, is a proposed project of Champion Paper & Fibre Co.

Prairie Fibreboard Plans Expansion

Prairie Fibreboard Ltd. plans a $750,000 expansion of its Saskatoon plant, which will increase plant capacity and provide for production of additional specialty softboard and hardboard products.

For a detailed article on this plant see page 48.

West Virginia Installing Another Clupak Unit

West Virginia Pulp & Paper Co. will equip a second paper machine for Clupak paper production increasing total capacity for this product to more than 150,000 tons annually. The company, at present, the world's only producer of the revolutionary product, began manufacturing Clupak paper early in 1958 after its new No. 3 machine at Charleston, S. C., was equipped with the first extensible unit. The second unit will be installed on the mill's No. 2 machine.

Because of the company's experience in installing and operating the first extensible unit, it expects the new equipment will be in operation within 30 days.

$1 Million Improvements At Dalhousie

More than $1,000,000 will be spent in 1959 by the New Brunswick International Paper Co. to improve the company's Dalhousie mill.

There are two special projects in the program. The largest is the installation of a high yield sulphite pulping plant, built around two existing digesters.

A second major project consists of the building of an extension to existing newsprint storage facilities at the mill, to hold 3,000 additional tons of newsprint. At the same time, to permit more efficient handling of newsprint at dockside, an extension to the paper shed at the wharf will be constructed.

Vaculite Moving to Ohio

Vaculite Corp., manufacturers of metalized paper, are moving their operation from Cambridge, Mass. to Hamilton, Ohio. Vaculite is a subsidiary of Champion Paper & Fibre Co. and National Research Corp.

Concluding Expansion at Franklin

Early in December the Union-Bag-Camp Paper Corp. began a major ($300,000) rebuilding job on its number three machine at Franklin, Va. The project is the final step in an extended expansion program at Franklin. Earlier this fall the mill started up a new 236 inch trim fourdrinier. The latest machine, fourth paper machine at the plant, represents more than one-third of the plant's daily capacity of some 600 tons.

In addition to the new paper machine, the division also opened recently its sheet finishing department in a building originally planned as a manufacturing unit.

Cascade Kraft Mill Nearing Completion

Cascade Kraft Corp. is proceeding rapidly on the construction of its kraft liner board mill at Wallula, Wash. The boiler plant started up in early December and the mill has been accumulating chips for some time.

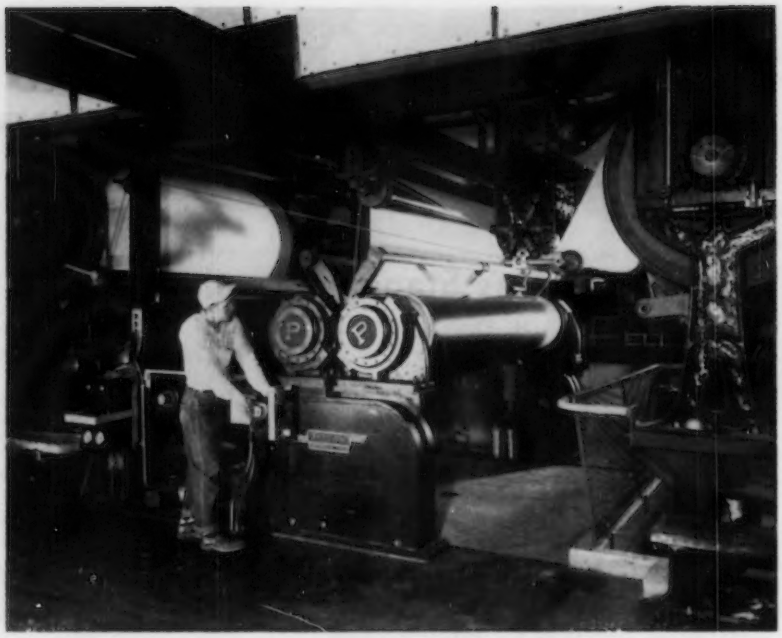
Target date for start-up of the pulp and board mill is February 15.

Continental Can's Canadian Subsidiaries to Merge Jan. 1

Continental Can Co.'s two subsidiaries in Canada—Gair Co. Canada Ltd. and Continental Can Co. of Canada, Ltd.—will be merged January 1, 1959, and will operate under the name Continental Can Co. of Canada, Ltd. David H. Ross, president and general manager of Gair Co. Canada, will become chairman of the board of the consolidated company while Frank A. Whittall, president and general manager of Continental Can Co. of Canada, will assume these same positions and be chief executive officer. James A. Stewart, executive vice president of Continental Can Co. of Canada, will hold that post with the combined firm.

The consolidated company will operate as an independent enterprise. All members of the management are Canadian, as are eight of the eleven directors. At the time of the consolidation, the headquarters will be at 111 Richmond Street West in Toronto. After August 1, 1959, the merged company will be located in the new Continental Can building at 790 Bay Street in Toronto.

Gair Co. Canada Ltd., with headquarters in Toronto, Ontario, operates 11 plants which manufacture boxboard, corrugated boxes and folding cartons. The facilities are located in Edmonton, London, Montreal, (3); Toronto (4); and Winnipeg, Manitoba (2). The company also has a pulp mill in Campbellford, Ontario.



Hamilton Paper Installs Horizontal Size Press at Plainwell

Hamilton Paper Co. in Plainwell, Michigan, has recently completed a sizable modernization program on its number 2 machine. The project included the addition of a Patton horizontal size press, an entire after-dryer section consisting of eight dryers, and a new Stamm moisture control system for the new after-dryer section. The project was engineered by Hamilton under the supervision of John Kauffman, chief engineer.

This paper machine trims 100 inches and it is operated at 325 to 350 feet per minute speeds. The machine manufactures E.F. book and offset grades in a 30 pound to 150 pound (25 x 38 — 500) range.

This is the first time that a size press has been installed on this machine. The Patton size press is entirely new with the exception of the rolls which are rebuilds. One unusual aspect of the installation is the fact that the entire press, including frame, bearings, loading system and other component parts, were designed and built for a considerably wider and faster machine. This provision will enable the mill to use this horizontal size press at a later date on a larger machine if this should be deemed desirable. The press was built to be eventually equipped with 24-inch diameter rolls. It is at present equipped with 19½ inch diameter rolls. To accomplish this temporary but functional arrangement, Patton built special saddles under the main bearing housings to get the size press frames close enough together to accommodate the present 19½ inch diameter rolls.

Special roll changing and handling equipment designed jointly by Hamilton and Patton engineers is part of this installation. A rope carrier system was installed on the horizontal size press and on the first two after-dryers.

In this horizontal size press installation the sheet is wrapped around the driven roll and is fed into the first unfelted bottom after-dryer. The soft, rubber covered roll is driven and crowned. The hard cover swing roll is straight. Nip pressure is usually maintained at 55 pounds but the mill has also experimented with 73 pound nip pressures, equivalent to 150 and 200 p.s.i. respectively.

Hamilton uses principally starch for its offset grades, according to James A. Dean, chief chemist. Water is used in the press when E.F. book grades are on the machine. Starch is maintained at 125°F. Starch solids vary from 0.3 to 0.6 pound per gallon depending on the grades being manufactured. Chlorinated starch is used exclusively.

Hamilton has experienced excellent results with this equipment, according to Ray Barton, general superintendent. Less two-sidedness, as judged by the pick test is reported. There appears to be an indication that the mill is able to maintain its sizing specifications with somewhat lower starch consumption with the Patton horizontal size press, as compared with the vertical size presses on the other machines there.

Canadian Industry Shows Substantial Gains

Canadian **woodpulp** production and shipments gained in October as compared with last year but were off in the first ten months owing largely to reduced levels of newsprint production earlier in the year.

Output in October was 899,746 tons as against 885,532 tons last year. Domestic shipments for the month were ahead at 689,066 tons as compared with 678,607 tons in 1957 while exports were 219,782 tons this year and 191,549 tons last year.

Production to the end of October totalled 8,278,994 tons this year, off from the 8,719,422 tons produced in the same period last year. Exports for the eight months were 1,834,374 tons this year as against 1,923,021 tons in 1957. Domestic shipments were 6,407,787 tons this year as compared with 6,779,574 tons last year.

Paperboard production and shipments in Canada gained substantially in October and the first ten months. October output was 86,896 tons, well ahead of the year ago figure of 73,055 tons. To the end of October, production was 749,729 tons this year as against 719,049 tons in 1957.

Domestic shipments totalled 78,913 tons in October as compared with 64,754 tons a year ago. Exports for the month were off at 6,945 tons this year as against 9,878 tons in 1957.

Shipments to Canadian consumers in the first ten months were 677,889 tons this year. Exports were 64,149 tons. In the same period last year, domestic shipments were 645,145 tons while shipments abroad were 67,848 tons.

Canadian **fine paper** production in October was 23,198 tons, a gain of 8.6 per cent from the 21,359 tons produced in October last year. Output in the first ten months was 213.627 tons, fractionally greater than the 213,515 tons produced in the same period last year.

October shipments were up 5 per cent at 22,279 tons as against 21,212 tons in 1957. Domestic shipments for the month were 20,969 tons and exports were 1,310 tons. In October last year, shipments to Canadian consumers were 19,589 tons while exports were 1,623 tons.

Shipments, to the end of October, totalled 211,990 tons as compared with the year ago figure of 212,055 tons. Included in this year's total were domestic shipments of 198,942 tons and exports of 13,048 tons. Domestic shipments in the same period last year were 198,663 tons while shipments abroad were 13,392 tons.

Coated paper output in October was 3,010 tons as compared with 2,577 tons a year ago. Shipments for the month were 2,902 tons this year and 2,873 tons in 1957. In the first ten months, coated paper production totalled 25,397 tons and shipments 25,726 tons. For the same period last year production was 24,989 tons and shipments were 25,293 tons.

Maxwell Paper in New Plant

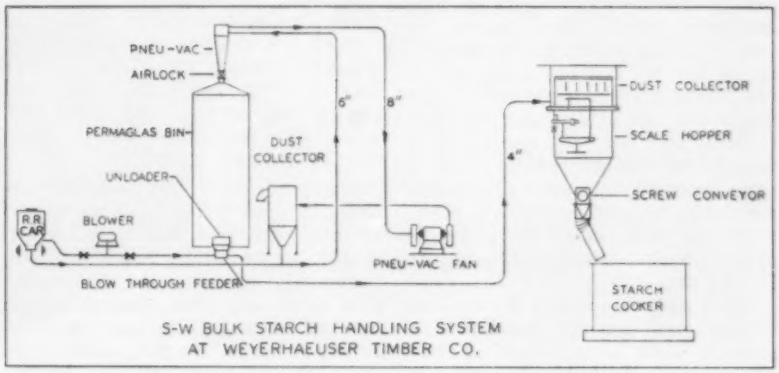
Maxwell Paper Products Company has expanded its operation into a new 20,000-square-foot warehouse and converting plant in Dallas, Texas. The new plant houses the administrative, sales, and converting departments.

Paper and Board Production

According to the American Paper and Pulp Assn., the ratio of the United States production to mill capacity for the week ending November 29, 1958, was 87.0 per cent compared with 91.7 per cent revised for the preceding week. The ratio was 87.0 per cent for the corresponding week a year ago.

The paperboard production ratio for the week ending November 29, 1958, was 88 per cent compared with 94 per cent for the preceding week and 86 per cent for the corresponding week last year.

(Detailed statistics on page 68.)



S-W BULK STARCH HANDLING SYSTEM AT WEYERHAEUSER TIMBER CO.

New Starch Handling Method Cuts Unloading Time for Weyerhaeuser

Lower cost, less contamination, cleaner and safer working conditions are among the advantages cited by the Pulp Division, Weyerhaeuser Timber Co., Springfield, Oregon, in describing its new bulk starch conveying and storage system, designed and engineered by Sprout, Waldron & Company, Inc. The system is used for unloading bulk starch from hopper bottom cars as well as for taking the starch to bulk storage and from there to cooking vats in weighed quantities.

Weyerhaeuser unloads an average of one 50 ton Airslide car per week. Unloading time, including hook-up, changing hoppers, etc. is between seven and eight hours with the actual unloading rate set at 10 tons per hour. Prior to using Airslide cars, ordinary hopper cars were used. These required continuous rodding to get the starch to unload and resulted in unloading times of nearly double that which is now secured through the use of Airslide cars. Key equipment in the bulk unloading method are the Sprout-Waldron negative pressure system which unloads the Airslide cars and delivers the starch into the glass-lined storage bins; and the Sprout-Waldron positive pressure system which actuates the car and conveys the starch from the bin unloader to the scale hopper.

John H. Vogel

Vogel Moves to Oxford

John H. Vogel will join Oxford Paper Co. as marketing research manager January 1, 1959. Before joining Oxford Paper Co., Mr. Vogel was economist for A.P.P.A. As such, he was responsible for the development and publication of financial, productivity, capacity and other economic reports on the paper industry. He also served as secretary of the Controllers and Statistical Committee on Coordination of Research and represented the paper industry on the Advisory Council for Federal Reports.

Mr. Vogel is a graduate of Lawrence College, Appleton, Wisconsin and did graduate work in economics at Marquette University, Milwaukee, Wisconsin and American University at Washington, D. C. He began his career in the paper industry as a sales trainee with Nekoosa-Edwards Paper Company in 1937. Subsequently, he became a commodity specialist for pulp and paper with the United States Tariff Commission and Advisor to the United States Delegation to U.N.E.S.C.O.

From 1951 to 1953 Mr. Vogel served as economist and assistant chief of the Pulp, Paper and Paperboard Branch of the Forest Products Division of the Office of Price Stabilization.

S. B. Macfarlane Retires

The retirement of Stanley B. Macfarlane, townsite manager of Powell River Co., Powell River, B. C., for the past twenty-three years, has been announced by the company. Mr. Macfarlane, who has twenty-nine years of consecutive time with the company, was recognized as one of the outstanding authorities of townsite construction and management in the industry.

Paul Schaffrath

Knight Replaces Schaffrath At Oxford

George S. McKnight, Rumford, Maine, has been appointed director of research for the Oxford Paper Co. in Rumford, Maine. Mr. McKnight succeeds Paul M. Schaffrath, who is resigning from Oxford to become mill manager for the Great Northern Paper Co., Millinocket, Maine.

George S. McKnight was born in Brooklyn, New York and is a graduate of Dartmouth High School and has a degree in physical chemistry from Dalhousie University. He joined Oxford in 1945 as a senior research worker with the research department. In 1949, he was promoted to a group leader with the same department and has been assistant director of research since late 1953.

New President and Executives for American Writing

Charles L. Kirkpatrick has been elected president of the American Writing Paper Corp.

Mr. Kirkpatrick, former vice-president and secretary of the corporation, succeeds Edward C. Reid, 57, of Granby who died Nov. 11. Mr. Reid had been president of the AWP since 1951 having succeeded Thomas H. Blodgett, present chairman of the board.

Promotions within the AWP were announced by Peter Freedman, vice-chairman of the board, and they are as follows:

Edward T. McQuillan to vice president in charge of manufacturing; N. M. Smiley as vice president in charge of merchandising; Fred A. Curtis as vice president; S. A. Salamone as comptroller and secretary; R. A. Twining as treasurer; H. P. Carroll as assistant secretary and assistant treasurer, with F. G. Pion remaining as assistant secretary.

It was also announced that the AWP has increased the quarterly dividend to 40 cents and voted an extra of 60 cents on the common stock, payable Dec. 26. In previous quarters 25 cents was paid plus an extra of 25 cents in September, bringing the total this year to $2. In 1957 shareholders received $1.65.

Top Executive Changes At Mosinee

Mosinee Paper Mills Co. of Mosinee, Wis. and its wholly-owned subsidiary, Bay West Paper Co. of Green Bay Wis. announced changes in some of their top-management posts. Two new positions have been created, and three existing vacancies filled. George L. Ruder of Wausau, Wis. was elected to be chairman of the board of both companies. He fills the vacancy created in the Mosinee firm by the death of Aytch P. Woodson in October, and a new post in the Bay West organization.

William J. Servotte was elected president of Bay West, and B. K. Gage vice-president in charge of sales, a new position. Mr. Servotte had been vice-president and general manager for the past 14 years. His election also fills a vacancy caused by Woodson's death. Mr. Gage had been Bay West's sales manager since 1946.

The vacancy on the Bay West board of directors has been filled by the election of C. M. Green, vice president and general manager of the parent Mosinee organization.

I P Otis Mill Manager Honored

Thomas G. Mangan was honored early in December at a banquet held in Livermore Falls, Maine. Mr. Mangan will retire this month having served 43 years with International Paper Co., the past 30 years as manager of the Otis mill.

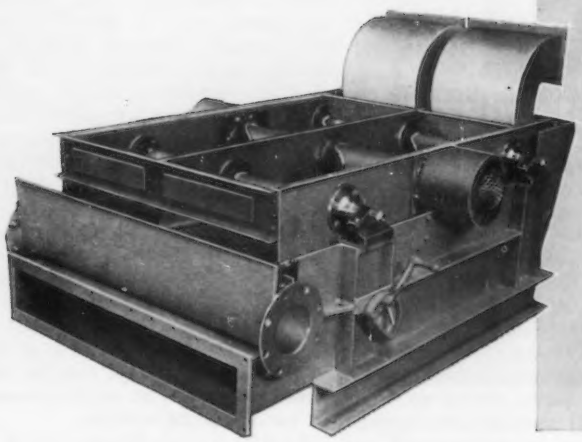
Benjamin Ansbacher Joins Brown Co.

Benjamin R. Ansbacher has joined Brown Co. in Berlin, N. H., as a chemist in the pulp division ot the research and development department.

Mr. Ansbacher previously was a chemist at the E. I. Dupont deNemours & Co. cellophane plant in Richmond, Va.

After graduating from Burlington High School in 1954, Ansbacher studied chemistry at Amherst College and was graduated cum laude in 1958.

VERSATILE WORKHORSE



- KNOTTING SULPHITE OR SODA PULPS
- SCREENING STRAW STOCKS
- KNOTTING OR BULL SCREENING GROUNDWOOD
- SCREENING BLACK LIQUOR AHEAD OF BROWN STOCK WASHERS
- SCREENING WASTE PAPER STOCKS
- SCREENING DEINK STOCKS
- SCREENING AHEAD OF NEWSPRINT MACHINES
- SCREENING STOCKS FROM REFINERS AND DEFIBRATORS
- SCREENING STOCKS FROM MASONITE GUNS

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Bird-Jonsson Screens, hundreds of them, are putting on daily demonstrations of their ability to do a wide variety of knotting and screening jobs . . . to handle high consistency stock and deliver lots of it, day in and day out at low screening cost per ton.

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DRAPER BROTHERS COMPANY
CANTON, MASS.

Seeman Promoted at Champion

Theodore L. Seeman has been named administrative assistant to the engineering manager at the Champion Paper and Fibre Co., Hamilton, Ohio.

Mr. Seeman is a 33-year veteran with Champion. He started work with the company in 1925 as a clerk in the storeroom office. In 1928, he transferred to the power plant where he worked in a number of clerical positions until he became cost analyst of the power plant in 1946. Mr. Seeman advanced to materials control clerk in 1947, and supervisor of work schedule in the engineering department in 1951.

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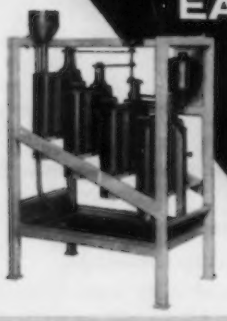

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Staff Changes at Mead in Chillicothe

Fifteen promotions, affecting the Mead Corp. Chillicothe, Ohio mill's inspection, steam power, electric power, and maintenance departments have been made.

Lloyd E. Brown, chief inspector, was named quality control director. He will be responsible for all quality and inspection functions of the Chillicothe division. Paul R. Francis, operating services committee, was appointed chief inspector, assisting Mr. Brown. Harry Smith, quality coordinator, was appointed assistant chief inspector, cutters. He will supervise all quality advisors.

In the steam power department, R. B. Myers moved from superintendent to advisor, steam power. Mr. Myers retires next year. Kenneth C. Melvin was promoted from assistant superintendent to superintendent of the department, and Walter V. Brown moved up from day foreman to assistant superintendent, steam power.

Six changes occurred in the electric power department. Fred Placier moved from superintendent to advisor, electric power. Mr. Placier also retires in 1959. Matthew H. Borland was promoted from assistant superintendent to superintendent of the department. The other changes were George A. Cotrill from assistant foreman, electric shop, to assistant superintendent, electrical maintenance; Kermit E. Hatfield from electrical foreman, number 3 mill, to assistant superintendent, electric power generation; Robert W. Smith from tour electrician to electrical maintenance foreman, number 3 mill; and Eugene R. James from day electrician to assistant foreman, electric shop.

In the maintenance department changes, David P. Stevenson was promoted from assistant to the superintendent of maintenance to maintenance engineer. Thoburn Kelley was promoted from day millwright to assistant to the superintendent of maintenance, and Dallas M. Hall was promoted from tour millwright to foreman, general maintenance crew.

Andrew GM of Wayagamack Sales

George M. Hobart, president, Consolidated Paper Sales, Ltd., announces the appointment as general manager, Wayagamack Sales, of John D. Andrew, formerly assistant to the late J. O. Chenevert, vice-president and manager Wayagamack sales. Mr. Andrew spent his early years in Scotland and after the last war, entered the London School of Economics and later obtained a scholarship to McGill University, graduating with the degree of Bachelor of Commerce with honors in economics. He joined Consolidated Paper Sales, Ltd., in February of this year and for eight years previously had been employed by Canadian Pulp & Paper Association as market analyst, statistician and latterly as secretary-manager of various trades sections.

Embree to Represent IP in Cleveland

Richard S. Embree has been named District Sales Manager of International Paper Co.'s southern kraft paper and bag division for the Cleveland, area.

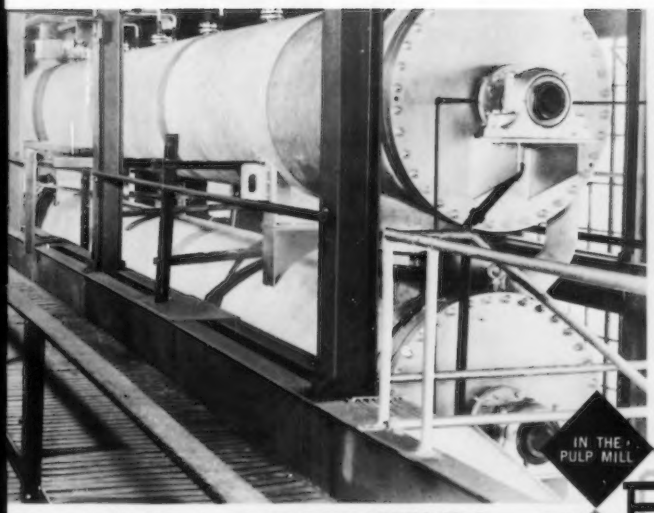
National Gypsum Creates Department

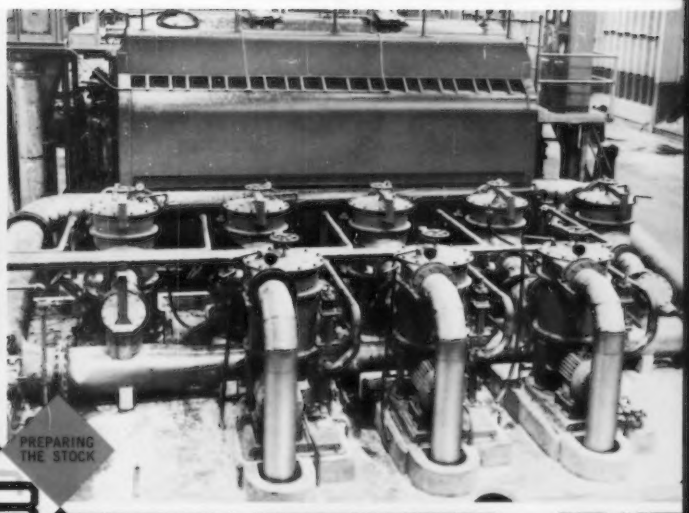
Charles H. Dwyer has been promoted to director of industrial and personnel relations for all of the 8,000 employes in 39 plants of the National Gypsum Co.

Mr. Manske said National Gypsum has consolidated into a single staff department all of the company's personnel and industrial relations for sales, operations, research and the Buffalo headquarters office and advertising center.

Joins Insurance Co. Board

Robert Faegre, president, Minnesota & Ontario Paper Co. joined the board of Employers Mutuals Insurance Co.





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TYPICAL ANALYSIS

Na_2SO_4	99.5% or better
Na_2O	.05% max.
B_2O_3	.05% max.
NaCl	.07% max.
Insoluble	Trace
Loss on ignition	Less than 0.1%
Solution	Clear
Color	White

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Donald Macaulay holds forth in Milan, Italy.

Two Americans Hold Paper Quality Control Seminar in Italy

Two seminars on quality control were held in Italy this fall under the direction of Donald Macaulay, president Paper Quality Control Inc., Chappaqua, N. Y. B. E. Sooy, production director, Wolverine Carton Co., Grand Rapids, Mich. and Dr. Virginio Zani, Milan, Italy, assisted Mr. Macaulay.

The subject was "The Application of Statistical Quality Control to the Paper Industry." The course lasted five days, included forty hours of lectures on the fundamentals and specific applications to paper mill operations.

Sponsorship was through the cooperation of the Institute of Pulp and Paper Research of Milan, Italy. There were forty-seven in attendance at the two Seminars, thirty at Cartiere Burgo. Here they had executives from the main office at Turino plus the directors as well as the technical Staffs from their eight paper mills in northern Italy.

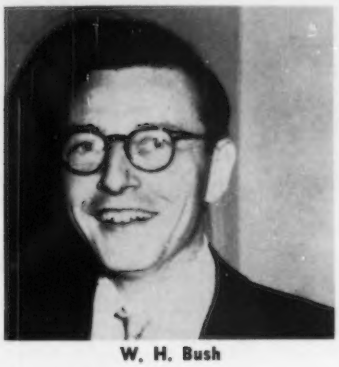
The Burgo paper company manufactures a little better than 200,000 tons of paper and is one of the largest producers in Europe, making everything from fine writing papers down through printing papers to newsprint.

At the Seminar held at the Polytechnic Institute of Milan there were seventeen in attendance representing the following paper companies: Cartiere di Verona, Cartiere Binda, Cartiere Italiana, Fibra Vulcanizzata. One box manufacturer was in attendance—Cartotecnica Bianchi and the two largest printers in Italy—Rizzoli and Mondadori of Verona.

Wesvaco Appoints Goodrich Detroit Sales Rep.

West Virginia Pulp and Paper Co. has appointed William Goodrich sales representative for the Detroit area.

Mr. Goodrich, a graduate of Michigan State University with a B.S. in Business Administration, has spent most of his business career in the paper industry. He will work out of the company's recently established Detroit sales office, located at 16115 Myers Road.



W. H. Bush

Heads Packaging Research for Scott

Scott Paper Co. has announced the promotion of John J. Collings to the position of project leader in the packaging section of the chemical research division.

Collings, who was born and raised in Sandusky, joined the company in February, 1952, as a consumers' representative in the Sandusky plant and in April, 1953, he was transferred to the chemical research division as a research chemist. During February, 1957, Collings was named manager of quality control at the cup division in Philadelphia, Pa., his present position.

Bush Superintendent At Dryden

William H. Bush was recently appointed pulping superintendent at the Dryden Paper Co., Ltd. Mr. Bush was formerly with Gaspesia Sulphite Co. Ltd., at Chandler, Quebec.

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St. Regis Appoints Asst. To Forestry Director

St. Regis Paper Co. announces that Robert S. Hyde has been appointed assistant to Paul M. Dunn, director of forestry, effective December 1, 1958. Mr. Hyde has been forest engineer in charge of forest engineering since 1956. He had been a member of the technical forest engineering staff of southern woodlands at Pensacola since 1952. Prior to joining St. Regis, Mr. Hyde was research forester with the Pennsylvania Department of Forests and Water, and with the U. S. Forest Service.

International Paper's Pine Bluff Mill Incorporates Latest Technical Advances

International Paper Co.'s newest and most modern mill, at Pine Bluff, Ark., first began operation in June of this year producing both newsprint and bleached kraft board. Located ten miles east of the city on a 4000 acre site near the Arkansas River, the mill has two 300-inch wide paper machines with capacity of 375 tons of newsprint and 475 tons of bleached kraft board per day. The Beloit paper machines are impressive not only in size and productive capacity, but also in their up-to-date design and thorough instrumentation. An indication of the effective instrumentation in the mill is that a change in demand at the paper machine causes compensating changes to occur in pulp and chemical preparation all the way back to the blow tanks. Other features of the mill are centralized chemical preparation, underwater pulpwood storage, and wide usage of concrete construction.

Mill Personnel

Manager of the new mill is Howard D. Hinman. J. L. Oswalt is assistant mill manager, and K. H. Powell is mill agent. Other key personnel are: G. C. Brodnax, technical director; B. A. Clubbs, U. M. & E. superintendent; R. H. Quinn, paper mill superintendent; Dale Weatherly, pulp mill superintendent; C. H. Power, chief chemist; W. R. Gammill, plant engineer; B. E. Townsend, master mechanic; H. C. McGough, power plant superintendent; and J. D. Hodge, chief electrician. Technical assistance and information for this article was supplied by Mr. Weatherly; A. P. Felton, assistant paper mill superintendent; and Roy Hunter.

Woodyard to Barking Drums

The woodyard of the Pine Bluff mill was described in *Paper Trade JOURNAL's* August 4th issue when startup of the two paper machines was announced. An important feature of the woodyard is the underwater storage of pulpwood in three large ponds, the largest 985 feet long, 150 feet wide and 22 feet deep with a capacity of 15,000 cords. The other two each have a capacity of 9000 cords and are 985 feet long, 100 feet wide and 22 feet deep. In addition, there is capacity for ground storage. The advantage of underwater storage is that no deterioration takes place for periods up to five years, and it is not necessary to continually turn the wood piles over.

Pine is being used at the mill at the rate of about 1200 cords per day. Diesel powered crawler cranes and electric powered cranes are used to unload the pulpwood from trucks and rack cars and to feed the flumes. There are two flumes, each 1160 feet long carrying wood to conveyors which feed the barking drums.

There are five barking drums, each 67½ feet long and 12 feet in diameter and rotating at approximately 7¾ r.p.m. Each drum has a capacity of approximately 600 cords of pine wood per day. The bark from this wood ,which averages about 600 lbs. per cord of wood, is conveyed to the power house where it is used as fuel for generating steam.

Wood Room

Two chippers, each equipped with 96-in. diameter disks and twelve knives and driven by 600 h.p. motors, handle logs up to 24-inches in diameter. The average chip size is approximately ¾-inches. The chips are carried from the chippers to screens by means of 48 inch wide belts and chain conveyors. Five vibrating chip screens are used, each 6 feet wide and 14 feet long. The oversized chips, rejected by the screens, are taken by conveyors to a chip crusher and returned to the chip screens.

Following screening, the chips are carried to chip silos by belt conveyors which are 36 inches wide, operate on approximately 260 foot centers, and travel at a belt speed of 440 f.p.m. Two belts are used so that pine wood and hardwood may be chipped and screened simultaneously, if desired. The chip silos are built of concrete reinforced tile and are 35 feet in diameter by 68 feet high, holding 38,600 cu. ft., or 200 cords of chips. These silos provide enough storage for about seven cooks each, or a total of 21 cooks. The discharge of chips from these silos is accomplished by a rotating table feeder 17 feet in diameter. A 36 inch and a

Pulpwood storage pond provides underwater storage for 15,000 cords. Two smaller ponds have capacity of 9,000 cords each.

42 inch belt conveyor in series, carry the chips from the silos to the digester room.

Kraft Pulp Mill

There are six 6,000 cu. ft. mild steel digesters producing an average of 16.8 tons per cook for an average of 42 cooks per day or 700 tons of pulp per day. An important feature of the semi-automatic cooking process is that the digesters are charged with liquor at the bottom rather than at the top. This innovation is time saving, gives less false pressure, and places the hottest liquor at the bottom. Cooks are made at approximately 100 p.s.i. for about two hours. Turpentine is recovered from the gases and stored for shipment to Arizona Chemical Co. where it is refined for commercial use.

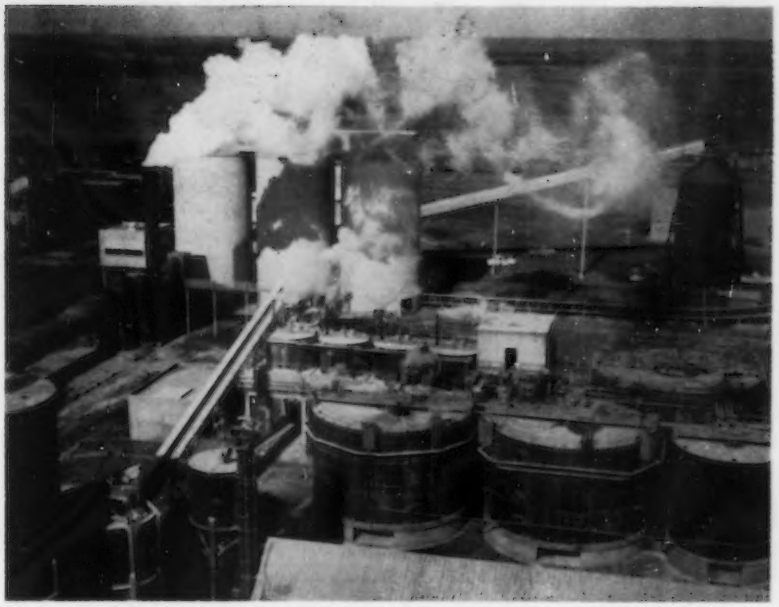
Three Irby Bros. blow tanks are installed, thus enabling three different types of chips or chip blends to be cooked simultaneously. These blow tanks are 26 feet in diameter by 71 feet—6 inches total height, having a capacity of 20,000 cubic feet each or approximately three "blows." The blow heat recovery system, utilizing shell and tube condensers, heats water to approximately 150°F to be used on the washers.

The cooked pulp is pumped from the blow tanks to Dorr-Oliver counter-current vacuum washers. There are three washer lines or sets. One set of three 3-stage washers, used for pine pulp, has drums of 11½ feet diameter by 20 feet face. The next set of three 3-stage washers has 11½ feet by 12 feet drums, and may be used for hardwood pulp. At present this set is also on pine. The third set consists of one 2-stage washer, 11½ feet by 12 feet, to be used for blends.

Filtrate from the washers is processed through the evaporators and recovery system.

After washing, the pulp is pumped to six Apmew knotters. Knots are carried by conveyor to a Jeffrey shredder where they are reduced in size. Water is then added and the slurry discharged into a 10 foot diameter reject tank. From this tank, the slurry is pumped to a Zenith screw press where the water is squeezed from the slurry and the dry (55 per cent moisture) rejects loaded into box cars for shipment to the Bastrop plant for use in unbleached paper grades.

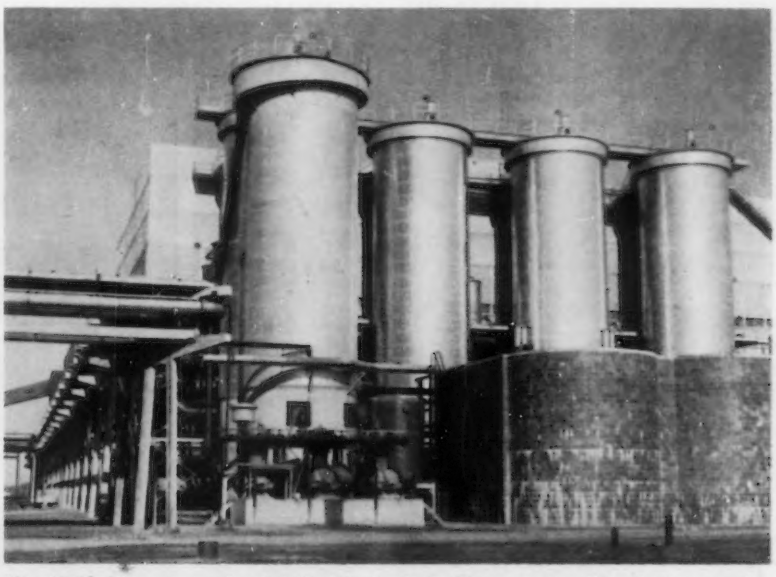
The accepted stock from the knotters goes through fine screens (Cowan centrifugal) and from there over Dorr-Oliver legless deckers for dewatering. The washed and thickened stock is discharged from the deckers and flows to stock chests immediately adjacent to the south side of the building. Decker sizes are listed as two, 11½ feet diameter x 12 feet and one, 11½ feet diameter x 20 feet. The pulp is agitated in the stock chests at about 3 per cent consistency and from there is pumped to the bleach plant.



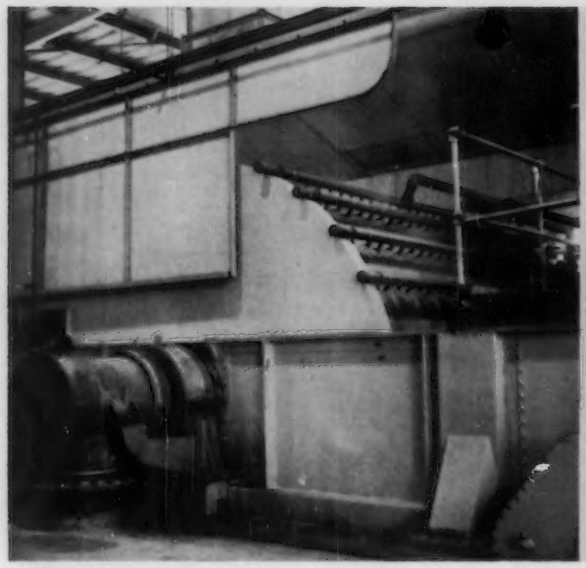
Caustic plant and lime kiln. White liquor is produced at rate of 525,000 gallons daily. Chip silos in background hold 200 cords each.

Bleach Plant

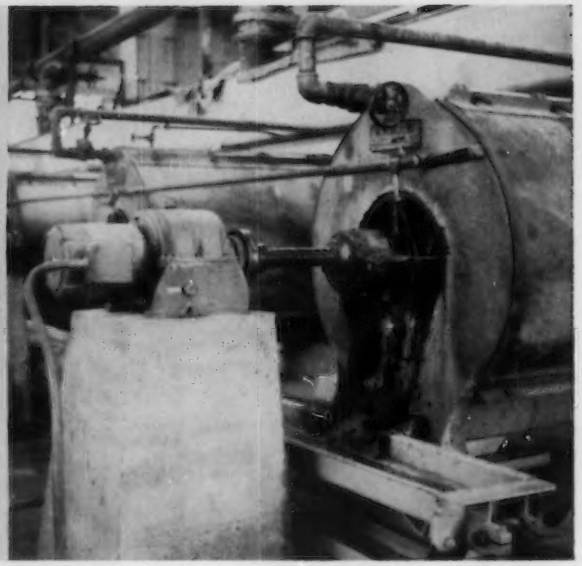
Two bleach lines are installed, one, a 3-stage system for producing about 115 tons of pulp per day at a GE brightness of about 60 for use in the production of newsprint. A second bleaching line producing pulp for the bleached board machine consists of seven stages which may be used to produce pulp of 85 brightness or higher. At present, only five stages (chlorination, caustic, chlorine dioxide, hypochlorite and chlorine dioxide) are used in production of pulp at somewhat lower brightness for milk carton board. The other two stages, not in use, are pre-chlorination and pre-caustic. Basic equipment consists of 14 feet diameter



Bleach plant towers are insulated with aluminum. There are two bleach lines, one for newsprint furnish, the other for bleached board.



Brown stock washers. There are three washer lines giving flexibility to the system.



Line of six knotters remove knots which are conveyed to shredder.

x 52 feet high towers and 8 feet diameter x 12 feet face washers for the "news" line, and 20 feet diameter x 80 feet high towers and 11½ feet diameter x 20 feet face bleach washers on the "bleach board" line. Chlorination is accomplished at 3½-4 per cent. The other stages are high density stages, 12-14 per cent. Retention times are about one hour for chlorination, three hours for other stages.

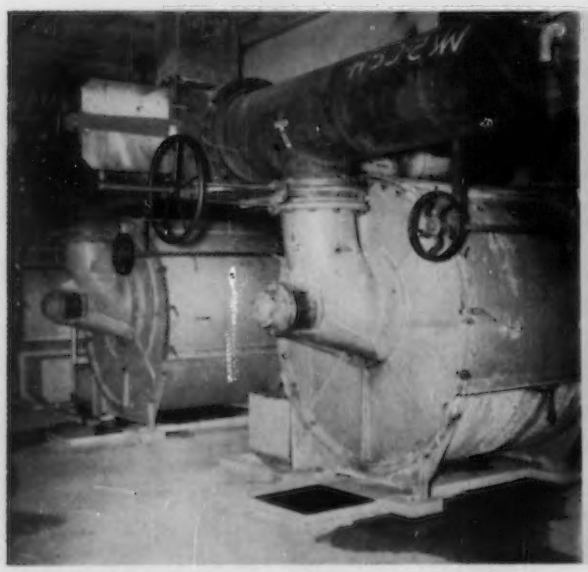
The bleach towers are outside of the building, and are tile lined. All pipe and equipment handling the bleached pulp are either rubber lined or made of stainless steel. Kamyr pressure feeders are used for the high density towers. Bleach towers were designed by Kamyr, built by Chicago Bridge and Iron. Chests and towers were tile lined by Stebbins. Dorr-Oliver vacuum washers are used in the bleach plant. The pulp, after bleaching, is stored in tile stock chests before being pumped to the paper machines.

Chlorine dioxide is produced approximately as fast as it is used by the Solvay continuous process. Bleach liquor is also produced continuously.

Groundwood Mill

There are six Great Northern Waterous grinders of the two pocket type, each driven by a 6,900 h.p. motor. The logs are fed to the grinders from an overhead conveyor.

Stock from the grinders flows to a bull screen and accepted stock from here goes to Cowan rotary screens. Accepted stock from the Cowans goes to four 11½ feet diameter by 20 foot face deckers where the stock is thick-



Centrifugal screens handle accepted stock from knotters.

Legless deckers thicken the washed and screened stock.

ened to 3 per cent consistency before it is transferred to the decker chest and finally to two 100 ton storage tanks. The rejects from the bull screens are run through a shredder. The shredded stock, along with tailings from the Cowan screens, is run through a drainer, and then a refiner. The refined stock is pumped back over the Cowan screens where the accepted stock is added to the system. Daily production of groundwood is about 300 tons.

Evaporators & Recovery Boilers

The spent cooking liquor from the pulp mill is stored in two large tanks in the evaporator area and is fed to a Goslin-Birmingham vertical tube evaporator consisting of six bodies which evaporates the liquor to approximately 50 per cent total solids. A shell and tube surface condenser using cooling water from the mill supply reservoir serves to pull a vacuum on the last effects. The first effects are heated with 60 lb. steam from the power plant.

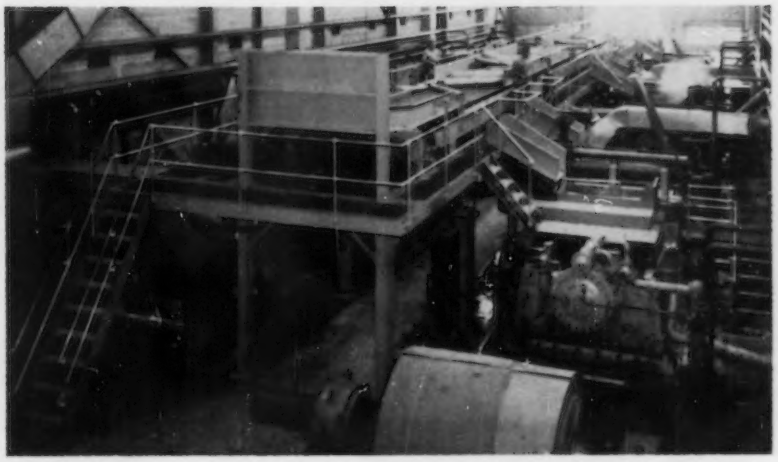
The evaporated liquor next goes to a storage tank and is fed to the recovery system where it is further evaporated through a Venturi scrubber. Make-up salt cake is added to the liquor following the Venturi and is fed by pumps to the recovery boilers. Two Babcock and Wilcox boilers rated at 390 tons of pulp per day each are used in this operation. In the recovery process about 95 per cent salt cake, 55 per cent sulphur and 95 per cent lime is recovered. Sulphur make-up is fed directly to the recovery furnaces in molten form.

Caustic Plant & Lime Kiln

Raw green liquor from the dissolving tanks is pumped to a 45 foot diameter x 24 foot clarifier for removal of impurities. Resulting clear green liquor goes to a slaker where lime is added, then flows through four 15 feet diameter x 10 foot causticizer tanks. The white liquor is then clarified in a 40 foot diameter x 24 foot tank and placed in storage tanks ready for use in the chip cooking process. A total of 525,000 gallons of white liquor is produced daily.

Insoluble material separated from the white liquor is washed in another 40 feet diameter x 24 feet clarifier and the resulting lime and mud slurry is pumped to the lime recovery process.

The lime mud first goes over a vacuum filter for removal of water and is then fed into the kiln. The kiln, supplied by Traylor and equipped with a Bogner sector system for more efficient lime recovery, is 10 feet diameter x 250 feet long, burns natural gas and rotates at 0.68 r.p.m. A total of 160 tons of lime is recovered daily and is stored in a 2,000 cubic foot silo ready to be used again in making white liquor.



Groundwood mill includes six Great Northern two pocket grinders. Overhead conveyor supplies logs to grinder line on each side of belt.

Water Treatment Plant

All of the water used by this plant is taken from deep wells, of which there are twenty, drilled to a depth of between 800 and 1000 feet. This water is high in iron content and is treated in a precipitator which has a total capacity of 32,500 gallons per minute. The treated water flows from the precipitator to a reservoir which has a capacity of 5,500,000 gallons. This plant will use approximately 25,000 gallons per minute at full capacity or 36,000,000 gallons per day. The water used by the power plant is processed through special demineralizers to a very high purity for efficient operation of the high presure boilers operating at 1250 pounds per square inch.

Waste water from the mill is pumped into a clarifier where the solids settle out before the water is allowed to flow into the Arkansas River. Waste material which accumulates is stored in a large impounding basin and is flushed out yearly at a river stage which is best suited for its removal. Stream surveys are made continuously in order to eliminate pollution of surrounding water.

Power Plant

Steam is generated in two 450,000 lb./hr. power boilers which are fired with natural gas as primary fuel, supplemented by waste bark from the woodyard operation. These boilers generate steam at 1250 p.s.i. and 1000°F. which is piped to steam turbines which generate electricity. The high pressure steam supply is supplemented by the

Power plant control room. There are two steam turbine generators rated at 40,000 k.w. and 20,000 k.w.

recovery boilers. The steam from the recovery boilers and the power boilers is piped to a common header and then to the steam turbines.

The two steam turbine generators were built by General Electric and are rated 20,000 k.w. and 40,000 k.w. respectively. The steam turbine of the larger unit is of condensing, single automatic extraction design and will use steam initially at 1250 p.s.i.g. and 950°F. The turbine will drive a 3600 r.p.m., 51,200 kva generator. The 20,000 k.w. unit's steam turbine is of the non-condensing, single automatic extraction type designed to use steam at the same initial pressure and temperature as above. Electricity is generated at 13,800 volts and is distributed to the mill electric centers in a conventional manner. The average kilowatt generation for this mill is approximately 55,000 k.w.

The 40,000 k.w. turbine extracts steam at 140 p.s.i. and exhausts to a 20,000 sq. ft. surface condenser which is cooled by circulating mill supply water through it at the rate of 18,000 g.p.m. The 20,000 k.w. turbine extracts steam at 400 p.s.i. and exhausts at 60 p.s.i. The operating steam pressures for this mill are 1250 p.s.i. main steam pressure, 400 p.s.i. for operation of power plant auxiliaries and paper machine drive turbines, 140 p.s.i. for cooking chips in the digesters and drying paper on No. 2 paper machine, and 60 p.s.i. for drying paper on No. 1 machine as well as all other miscellaneous heating uses.

Bark & Coal Handling System

The bark which is removed from the logs in the rotary drum barkers is conveyed by belt conveyors to bark crushers where it is crushed and shredded to proper size for burning in the boilers. There are two bark crushers, one with a capacity of 55,000 lbs. bark per hour, the other with a capacity of 27,500 lbs. bark per hour. One of these crushers will normally be a standby unit. After crushing, the bark is conveyed to a bark silo of steel construction which is 20 feet diameter x 50 feet high. The bark is fed from the bottom of this silo in controlled amounts by a screw unloading mechanism and is conveyed from the silo to the main bark and coal conveyor belt. Coal in limited quantities is also fed on this main conveyor from its storage silo, which is a solid stave concrete bin 30 feet diameter x 52½ feet high. The coal is fed from the bottom of this silo by means of a vibrating feeder. The bark and coal together are conveyed up a long inclined conveyor belt to the power house where it is again transferred and dumped into two feeder bins in the power plant building prior to being fed to the furnaces of the power boilers.

The coal unloading system consists of a bar flight feeder which is rated at 18 tons per hour and which is designed to receive the coal from hopper bottom cars and convey it to a coal crusher where it is reduced to approximately ½ inch uniform size. It is then delivered to a bucket elevator which elevates it and dumps it in the top of the coal storage bin.

Paper Mill

There are two paper machines in the mill, No. 1 the newsprint machine and No. 2 the bleached kraft board machine. Wire width for both machines is 300 inches. No. 1 trims 277 inches and has a wire length of 141 feet 2 inches. It is designed for speeds up to 3000 f.p.m. and is currently operating at 2350 f.p.m. The turbine is rated at 4000 h.p. and production is expected to be 375 tons per day or more.

No. 2 machine trims 278 inches and has a wire length of 179 feet 6 inches. It is designed for speeds up to 2000 f.p.m. and will produce 475 tons per day of bleached kraft. This machine is currently producing milk carton board at a speed of approximatley 550 f.p.m., and has already gone over design production tonnages. It is powered by two turbines, one of 4000 h.p. and the other 880 h.p. The smaller turbine will take the machine up to 1000 f.p.m.

Bleached Kraft Board

Stock from the bleach plant is pumped to a 7-ton raw stock chest, from this chest through a magnetic flow meter and through Jones double disk refiners to a tile mixing tub. Stock from the 30-ton broke storage tower is refined by a No. 6 Miami jordan, goes to a Jonsson vibrating screen and then goes over an 8 feet diameter x 16 feet face Dorr-Oliver saveall which discharges in the above mixing tub.

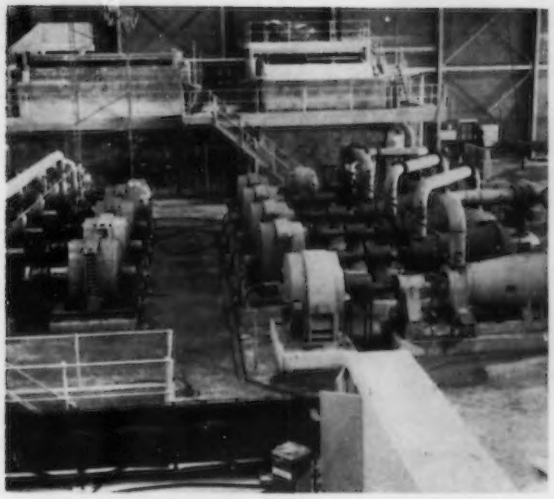
From the mixing tub the stock goes through a mixer to a 7-ton tile chest where other furnish is added. Then through another mixer to a 30-ton capacity machine tower which is 38 feet high and 28 feet in diameter. Next, the stock is pumped through four E. D. Jones Leviathan jordans, each with 700 h.p. motors. The stock is then reduced to about ½ per cent and pumped through a Deculator-Bauer cleaner system before going to the machine headbox.

The stock preparation or beater room operation is designed to operate automatically, in that the addition of all chemicals and furnish are metered and added in proportion to the stock flow as required for the various grades of product being made. The furnish and chemicals are prepared in a separate building which has equipment for the most efficient operation.

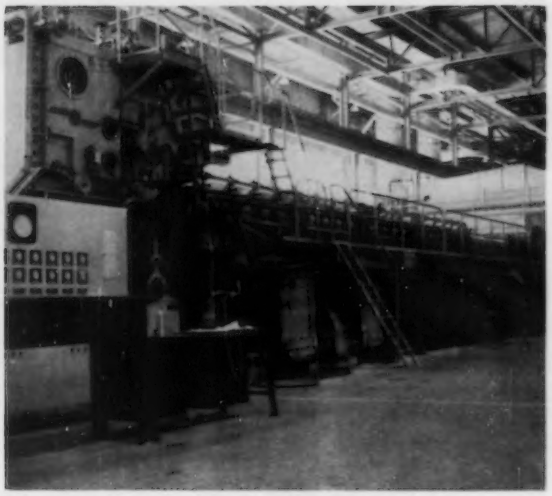
From the standard Beloit air cushioned headbox, stock goes to the fourdrinier wire, over 29 table rolls of 14½ inches diameter, 10 suction boxes, a 54-inch diameter couch roll, press section, six dryer sections, two calender stacks and the reel. There are two press sections; the first consists of a straight

Principal Suppliers to Pine Bluff

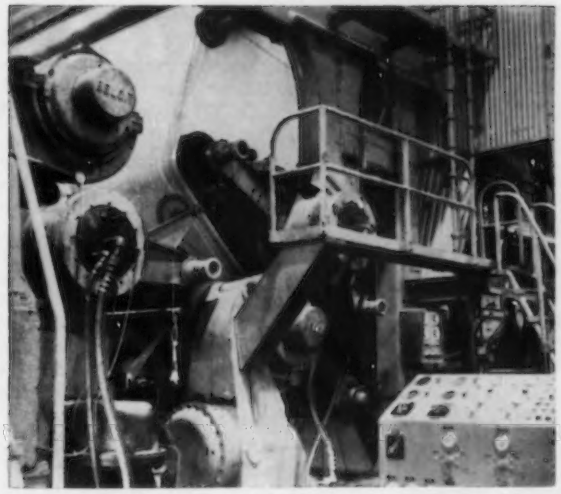
Allis Chalmers
Anaconda Wire & Cable Co.
Appleton Wire Works
Asten Hill Manufacturing Co.
Babcock & Wilcox
Bauer Bros. Co.
Beloit Iron Works
Carthage Machine Co.
Chicago Bridge & Iron Co.
Clark & Vicario Corp.
Dorr Oliver, Inc.
Draper Bros. Co.
Farrel-Birmingham Co.
Fibre Making Processes
Fischer & Porter Co.
Fisher Governor Co.
Foxboro Co.
General Electric
Goslin-Birmingham
Hagan Chemicals & Controls
Ingersoll Rand Co.
Irby Bros. Machine & Iron Works
Jones, E. D. & Sons Co.
Lamb-Grays Harbor Co.
Link-Belt Co.
Lindsay Wire Weaving Co.
Lock Joint Pipe Co.
Montague Machine Co.
Nash Engineering Co.
Nichols Eng. & Research Corp.
Northern Engineering Works
Orr Felt & Blanket Co.
Panellit, Inc.
Permutit Co.
Ross Engineering Co., J. O.
Ross-Midwest Fulton Corp.
Rothschild Boiler & Tank Works
Sandy Hill Iron & Brass Works
Simplex Wire & Cable
Smith Corp., A. O.
Stebbins Eng. & Mfg.
Traylor Engineering & Mfg. Co.
Westinghouse
Whiting Corp.



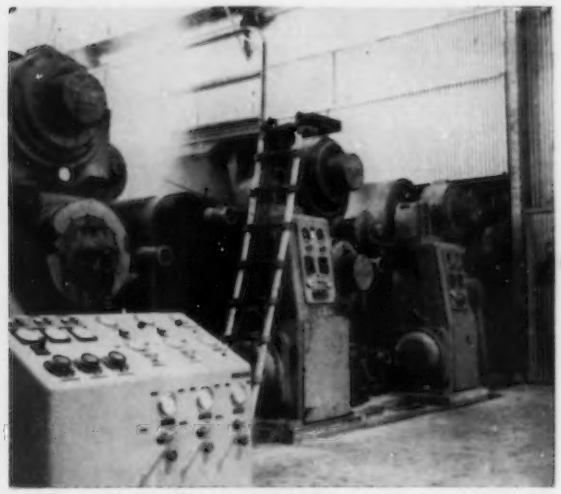
Stock preparation area for board machine.



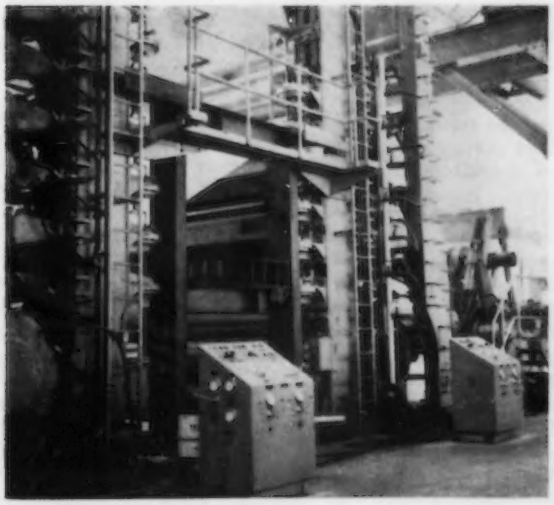
No. 2, the board machine, is rated at 475 tons a day.



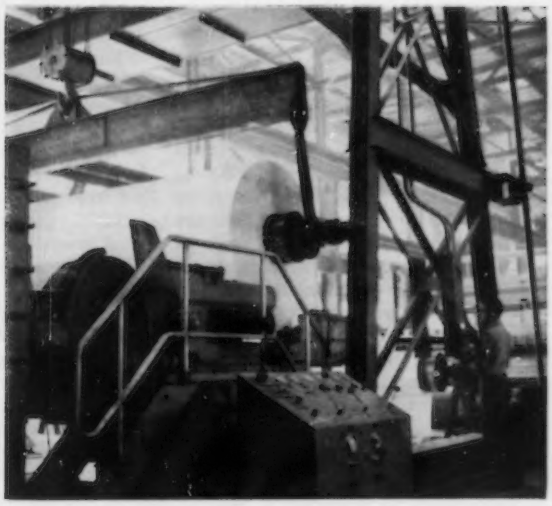
First press section is followed by 12-drum dryer section.



Hot press section follows the dryer section.

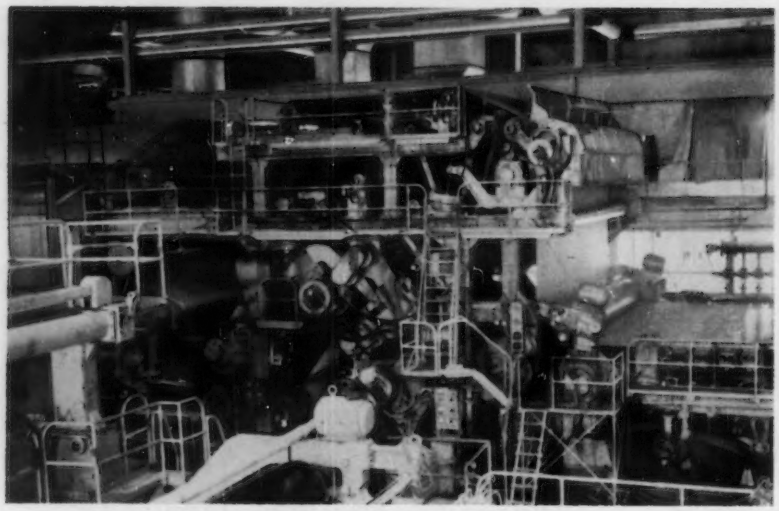


No. 2 machine calender stacks.



Reel of bleached board being removed.

Frozen flow headbox on newsprint machine dominates this view.



Press section includes a three-roll inclined first press with two suction rolls.

through suction first press and an inverse second press; the second or hot press section follows a 12 drum dryer section and consists of a straight through suction press, a plain press and smoothing press.

The second and third dryer sections with 16 dryer rolls each are followed by the breaker stack, then two more sections of 16 dryers each, the size press and the last dryer section with 14 dryers. There are 90 paper dryers in all, plus 22 felt dryers. The breaker stack and size press have rolls of the same size, top rolls 42 inches diameter and bottom rolls 41 inches diameter. The board machine has a top speed of 2000 f.p.m. and a top winder speed of 4500 f.p.m. In addition to the size press, provision is also made to apply size at the calender stack.

Both machines have Beloit differential type drives, Ross-Grewen air systems for uniform drying and Ross Midwest Fulton dryer drainage systems.

Dryers for both machines are housed in J. O. Ross totally enclosed hoods which open automatically if the sheet breaks. The exhaust air from the hood is used to heat air from outside the building which replaces the saturated air from around the dryers. Trim and rejected paper is pulped in E. D. Jones Brokemasters at around 3½ per cent. This pulp is pumped to a broke tower and from there blended into the stock.

From the Beloit L-type winder, rolls of paper or board are conveyed automatically through wrapping or banding stations, then to the shipping platform or to the warehouse for storage. Some of the paper and board is cut into various size sheets to the customer's specifications and loaded in cartons or on skids for shipment. Machine dried pulp is shipped in both bales and rolls. Rolls are handled the same as paper rolls. Baled pulp is first cut into sheets on a 150-inch cutter, then baled and taken to the shipping dock or warehouse by a continuous system of conveyor equipment.

Newsprint Production

For the No. 1 or newsprint machine the mixed stock for making newsprint is made up of three stocks (groundwood, kraft, and broke) and stored in a 15 ton tile mixed stock tower. Groundwood at 3 per cent is pumped directly from groundwood storage through a meter to this tower. Broke at 3 per cent is pumped from the 25 ton broke tower through a jordan and blended with stock from the 11½ feet diameter x 20 feet face Dorr-Oliver saveall in a tile blending tank and then pumped to the mixed stock tower. Kraft is first pumped to a 7-ton tile chest and then through two small jordans to the mixed stock tower. All of the above stocks are proportioned automatically by Foxboro magnetic flow meters and De Zurik stock valves. No regulating box is used.

From the mixed stock tower the blended stock is pumped through another flow meter which controls the amount of stock to the paper machine, diluted to 1½ per cent with wire pit white water and then pumped to Bird Jonsson vibrating screens. The stock is then diluted to approximately ½ per cent with wire pit water and pumped through a Vorvac system which removes dirt and air and then to the machine headbox.

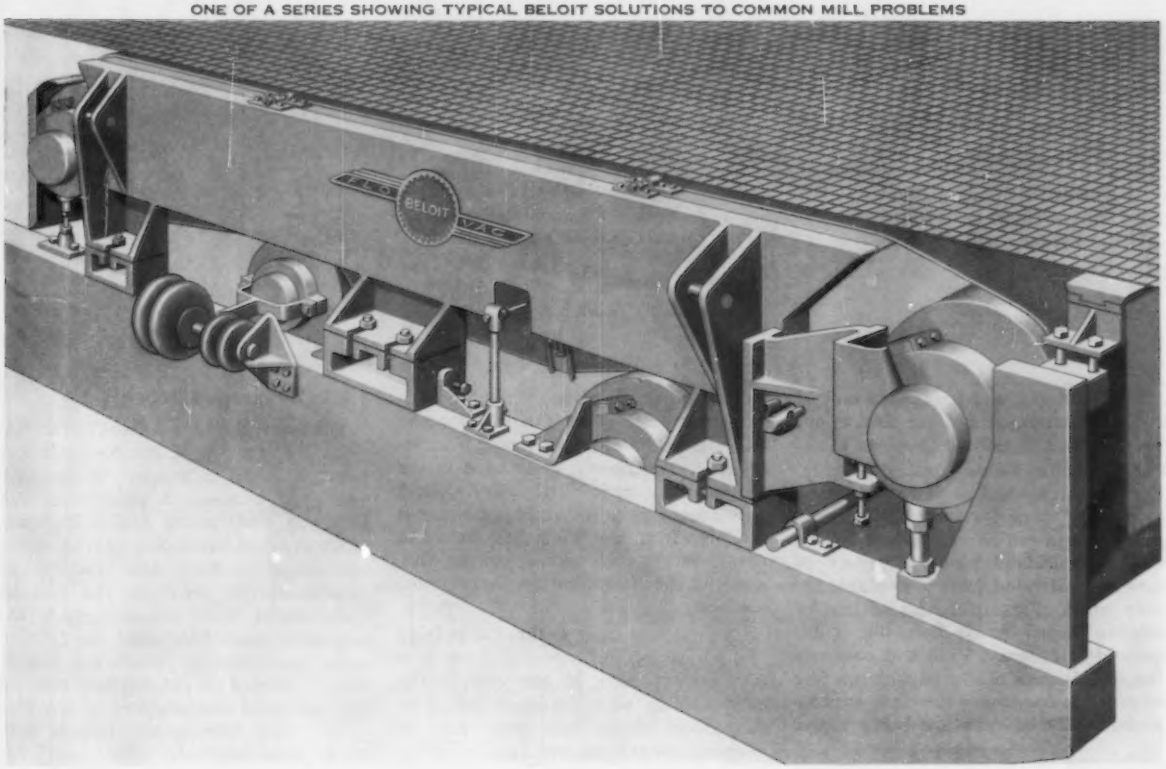
No. 1 machine has a Canadian I.P. Co. patented "Frozen Flow" headbox in which stock flows through parallel plastic tubes that "freeze" the flow. The paper machine has 21 table rolls (grooved rolls 16-13/16 inches diameter, others 16-5/16 inches) seven suction boxes and 44 inch diameter couch roll, and is equipped with suction pickup.

The press section consists of a three roll inclined press, with two suction rolls and a center roll of granite, plus a straight through conventional suction third press. The dryer section has 61 paper dryers and 8 felt dryers, all five feet in diameter.

The calender stack has a 50 ton, 40 inch diameter king roll; 24 inch diameter queen roll; and six 20 inch diameter intermediate rolls. After leaving the calender stack, the sheet is usually wound in 7 foot diameter rolls (8 feet max. diameter) at the Beloit automatic transfer reel and then cut and wound into smaller rolls on the L type winder with tru-tension control and regenerative braking.

BELOIT UNIT MODERNIZATION

ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS



PATENT PENDING

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New Saskatoon Plant Produces Insulating Board from Straw and Hardboard from Wood

G. D. Sinclair and **H. R. Sallans**

Former Managing Director
Prairie Fibreboard Ltd.
Saskatoon, Sask.

Engineering and Process Developments
Prairie Regional Laboratory
National Research Council

The insulating and hardboard mill of Prairie Fibreboard Ltd. at Saskatoon, Sask. is the first mill in Canada to produce insulating board from straw pulp. The plant is located at Saskatoon in an area where straw is customarily a waste product, and which is adjacent to the northern parkland where a variety of hard and softwood trees is available for pulp wood. First trial runs of the insulating board production line commenced in January, 1958 and commercial boards were produced within a few weeks. The hardboard line is now completed and trial runs are being made.

The mill was designed to produce 20 million square feet of insulating board on the basis of ½" thickness, and 12 million square feet of hardboard on the basis of ¼" thickness per annum. The main mill building, a structure 550 feet long and 140 feet wide, is constructed of reinforced concrete beams and concrete block. It is located within half a mile of main highways connecting all parts of the prairies, which makes it convenient for delivery of straw and distribution of the finished products by truck. Pulpwood can be easily moved from the company wood limits, to the mill because of good road and rail connections. When the mill is in full production it is expected that 75-80 men will be employed.

Original plans called for the new mill to produce insulating board from straw only, but due to the possibility of a straw shortage during drought years, the plans were altered to enable the mill to use wood as an alternative raw material. Since the mill must be prepared to pulp wood as well as straw, it was decided that both insulating boards and hardboards should be produced. With these preliminary plans in mind, Saskatoon was selected as the site for the mill. In addition to advantages mentioned above the city is situated in the geographical center of the prairies provinces, a plentiful supply of water is available from the South Saskatchewan River, and gas and power can be supplied by the Saskatchewan Power Corporation.

The mill was built so that the pulping of both straw and wood is done in a two story section at one end of the mill building with the stock tanks on the lower level. The pulp can be pumped to either of two Dominion Engineering forming machines with press sections, one for insulating board and the other for hardboard. One of the forming machines and press sections is arranged so that insulating board can be formed and conveyed directly to a Coe dryer. The other former and press section is arranged so that the sheets formed for hardboard are conveyed to a 20 opening hot press, then carried on through tempering and humidifying chambers. The boards from both production lines converge to pass through the same set of dry trim saws. The mill building was planned with sufficient space to accommodate a second dryer and a second hot press. In both cases these can be located beside the existing units and loaded by means of lateral conveyors connected to the wet saw tables of the respective formers and presses. The two formers are capable of producing enough board to accommodate the additional dryer and hot press. This will make it possible to double the production of the mill with a minimum disruption of production.

P.R.L. Developed Process

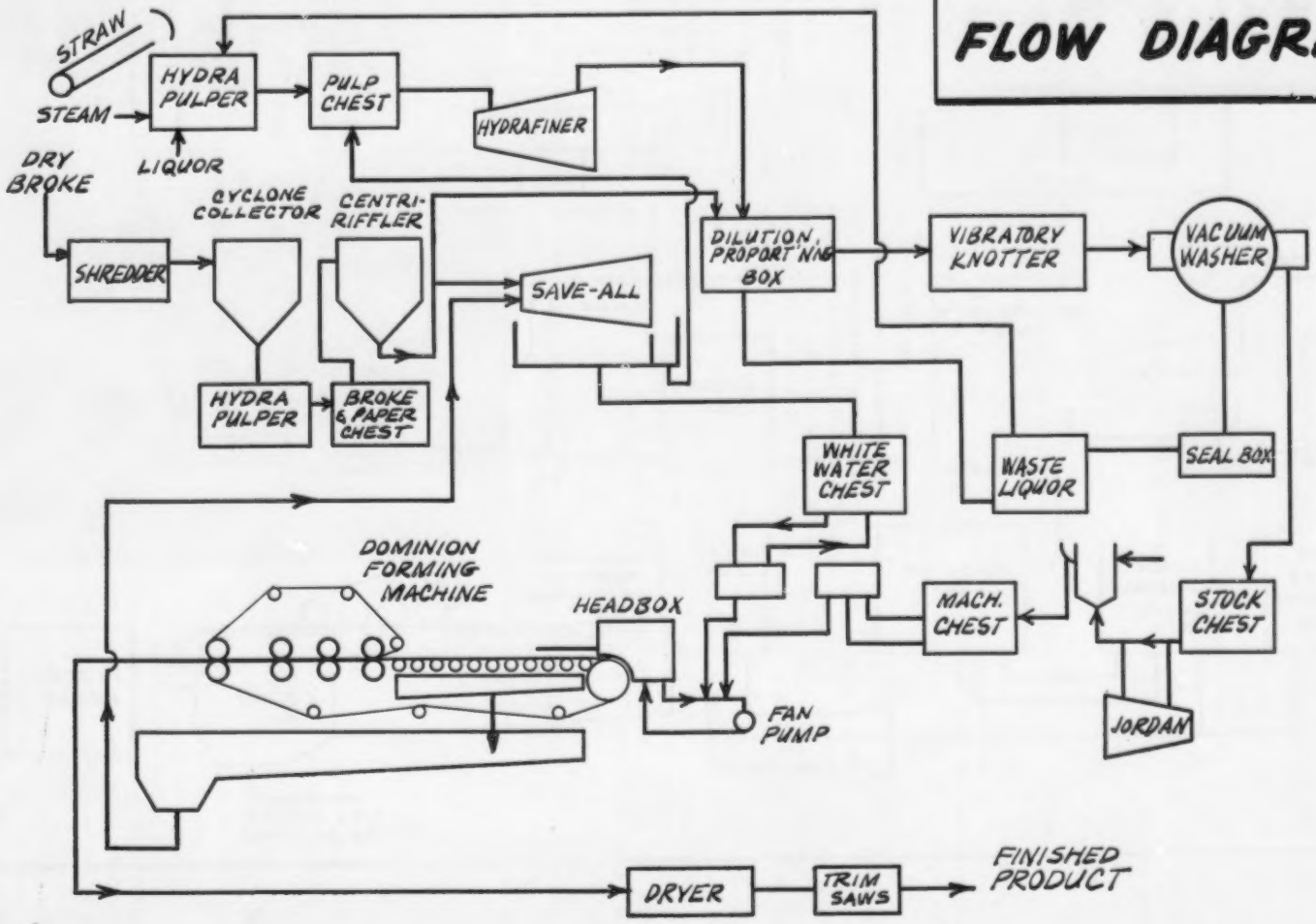
The part played by the Prairie Regional Laboratory of the National Research Council in relation to this new mill is of interest. A pilot plant was set up in 1949 at the Prairie Regional Laboratory in Saskatoon and equipped with small working units capable of pulping fibrous materials and making fiber boards. With this equipment experiments were conducted on pulping straw and making insulating board. Many methods of pulping and refining and numerous combinations of raw materials were investigated. Boards produced experimentally were tested for tensile and flexural strength, density, water absorption and nail holding ability and proved to be equal or better than commercial boards. The mill was designed and engineered by Stadler, Hurter Co., Montreal in consultation with the Prairie Regional Laboratory.

Straw and Wood Handling

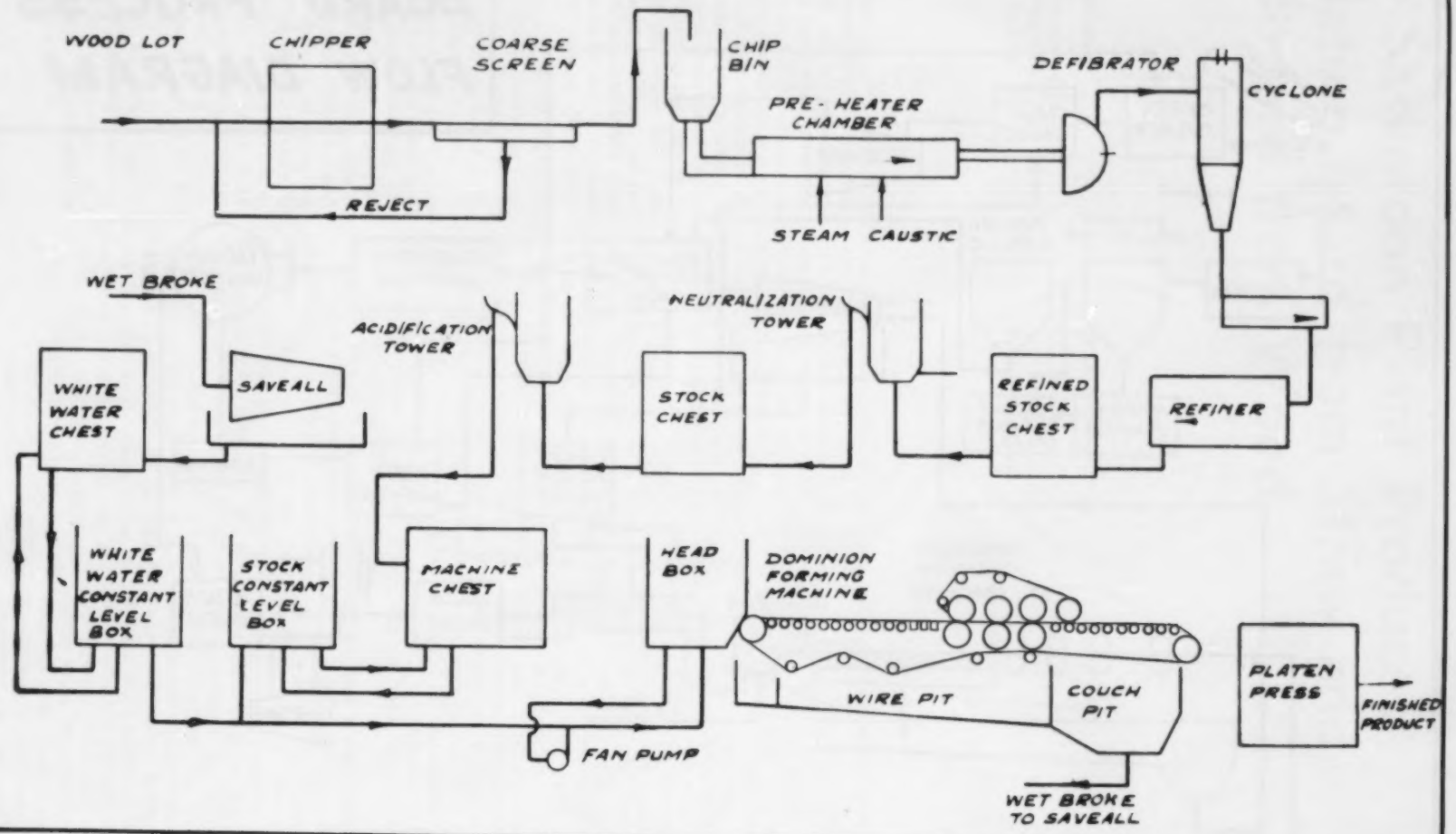
Straw is bought from the farmers in the surrounding district during the wheat harvesting season. The farmers may bale the straw themselves, or the company will contract to bale it for them. Due to the small quantities of straw required during the first year, the radius of purchases was only about 25 miles. In ensuing years a larger area will be covered and a system of local purchasing centers will probably be instituted.

Pulp wood will be procured from the timber limits 70 miles north of Saskatoon that have been leased from the Saskatchewan government, and from farm wood lots. The woods that will be used are poplar, jack pine and spruce, and they will be delivered to the mill by truck and rail car.

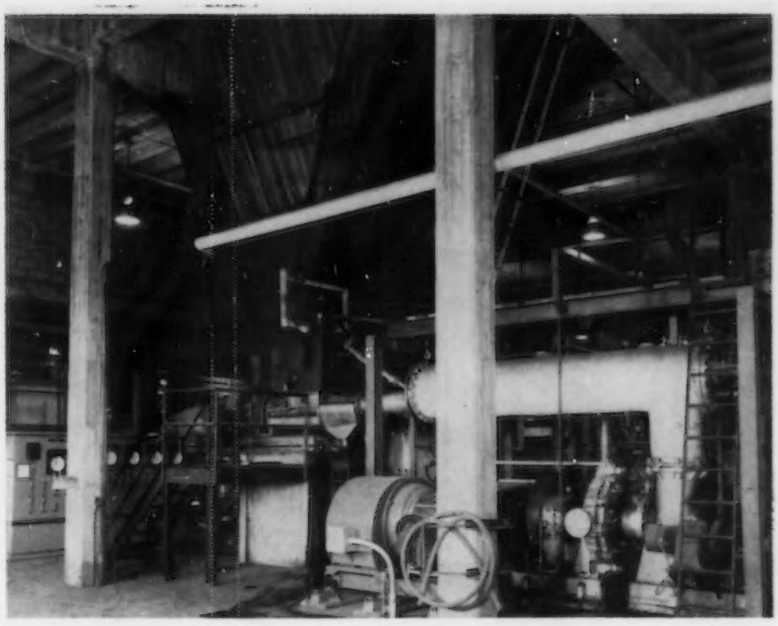
INSULATING BOARD PROCESS FLOW DIAGRAM



HARDBOARD PROCESS SIMPLIFIED FLOW DIAGRAM



A fifteen acre storage area has been provided for reserve supplies of wood and straw at the mill. Straw is loaded from a platform onto a belt conveyor for discharge into the straw Hydrapulper. The logs are brought into the building by a conveyor and dropped into a Sumner chipper. The chips are blown to a cyclone mounted above the vibrating chip screen. Accepted chips are conveyed pneumatically to the storage bin located on the roof. The logs are not debarked prior to chipping since the amount of bark which is left attached to the chips, after passing through the chipping, airveying and screening operation, is too small to have any adverse effect on either the insulating board or hardboard.



Asplund Defibrator unit prepares stock for hardboard from wood. The unit includes a tube where chips are treated with caustic and steamed prior to refining.

Straw Pulping

Pulping of the straw is done in a Black-Clawson 12 foot Hydrapulper. A charge of straw, sodium hydroxide or lime, and water are heated and agitated at 10 per cent consistency for one hour at 205°F. The combined agitation by the Hydrapulper, and the action of the chemicals and heat break down the straw. When it has been pulped sufficiently it is pumped from the Hydrapulper into a chest and diluted to 4-5 per cent consistency. From the semi-pulp chest the stock is pumped through a Sprout Waldron refiner. There it may be discharged directly into the pulp chest or alternatively passed over a Kamyr vacuum washer. After rosin size is added the stock is pumped through a consistency regulator and a neutralizing tower, where alum is added to precipitate the rosin. The pH is adjusted by an automatic pH controller which regulates the addition of the alum before the stock reaches the machine chest. If necessary, the stock can be refined farther by means of a Hydrafiner before it goes to the neutralizing tower and into the machine chest.

Wood Pulping

Wood chips from a storage bin fall into the pre-heater of the Asplund Defibrator by gravity. The chips are compacted in the plug pipe where they form an effective seal against the steam pressure in the pre-heater. Saturated steam and caustic are admitted at this point and the pre-heater is maintained at the proper temperature to soften the chips before they pass through the Asplund Defibrator, the first stage of refining.

The pulp is discharged from the Defibrator through a pressure release valve to a cyclone. Here white water is added and vapors are blown off. The pulp is then passed through a Sprout-Waldron refiner, and drops into the first stock chest. It is then passed through the neutralization tower where caustic is added if necessary. Stock leaving the neutralization tower is fed by gravity into the stock chest and size from a constant level box is added to the pulp in the chest. The stock is pumped from the stock chest through a consistency regulator to an acidification tower where size is precipitated with alum. The stock now is fed to the machine chest and is stored ready for the forming machine.

The board stock is supplied to the headbox of the formers at a constant head by means of a stock level control box. The headbox has a recirculating fan pump and if dilution of the stock is necessary, white water can be added ahead of this fan pump.

Waste Paper and Broke

Waste paper, if available at a reasonable price, can be loaded into the broke Hydrapulper where it is mixed with the broke from the trim saws, heated and pulped and then stored in a tank. It is pumped from this tank to the stock chest and blended with the board stock. Asphalt for sheathing board and asphalt impregnated roof insulation, is added in this Hydrapulper and carried over to the stock chest with the repulped broke.

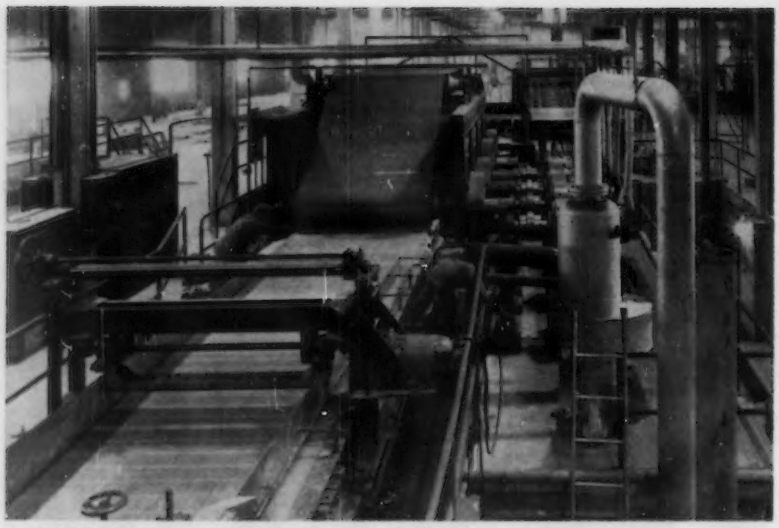
Save-Alls

Two save-alls have been installed to recover fibers from machine white water and wet broke. The wet broke from the couch pits of the forming machines is pumped to the save-alls, the water is sent to the white water chest and the fibrous material is dropped into the insulating board stock chest. In this way the recovered solid material is combined with the new pulp before the pH and consistency have been adjusted.

Insulating Board Forming Machine

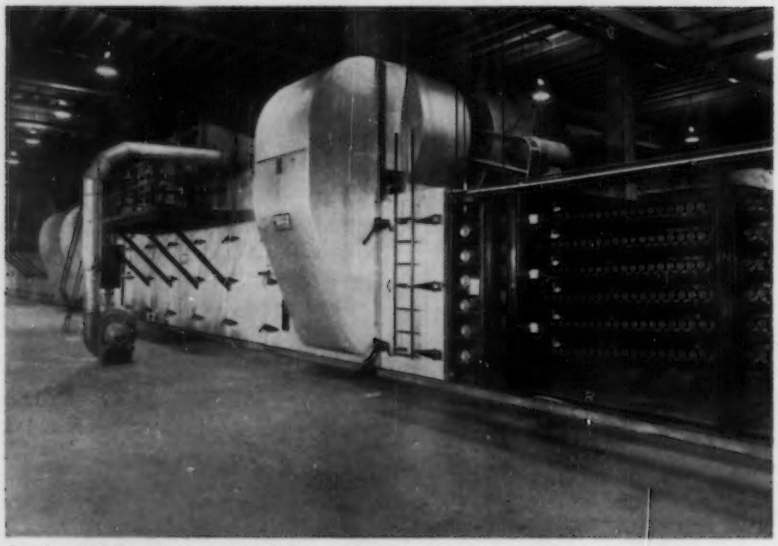
The insulating board forming machine and press built by Dominion Engineering Co. Ltd. has a wire width of 60 inches. Stock leaving the headbox flows onto the fourdrinier wire which carries the wet mat over a suction box and through the press section. A short stroke vibrating puddler is provided which can be located at any position along the table roll section, to break up any lumps in the stock.

The machine is equipped with one stationary suction box and a Rotabelt to remove the maximum amount of water before the board enters the presses. The press section consists of four plain bronze presses with a top wire. The spacing between the rolls can be adjusted by the use of handwheels on the front and rear and counters enable spacings to be read directly in thousandths of an inch. The rolls are spring loaded to keep their settings and the tensions vary in each press to provide an equivalent loading of from 200



Dominion Engineering 60 inch fourdrinier insulating board machine.

Feed from insulating board forming machine (at rear) toward dryer.



Gas heated Coe dryer installation on insulating board machine.

pounds per linear inch in the first press to 500 pounds per lineal inch in the fourth press.

Trimming and Drying Insulating Board

After passing through the fourth press the board is strong enough to be carried on the roll conveyor of the wet saw table. It is trimmed on both sides by two wet saws and the trimmings drop into the couch pit. The sheet is then cut into boards of appropriate length by a Coe cut-off saw. This travels on a fixed track diagonally across the sheet at the correct speed to produce a square cut.

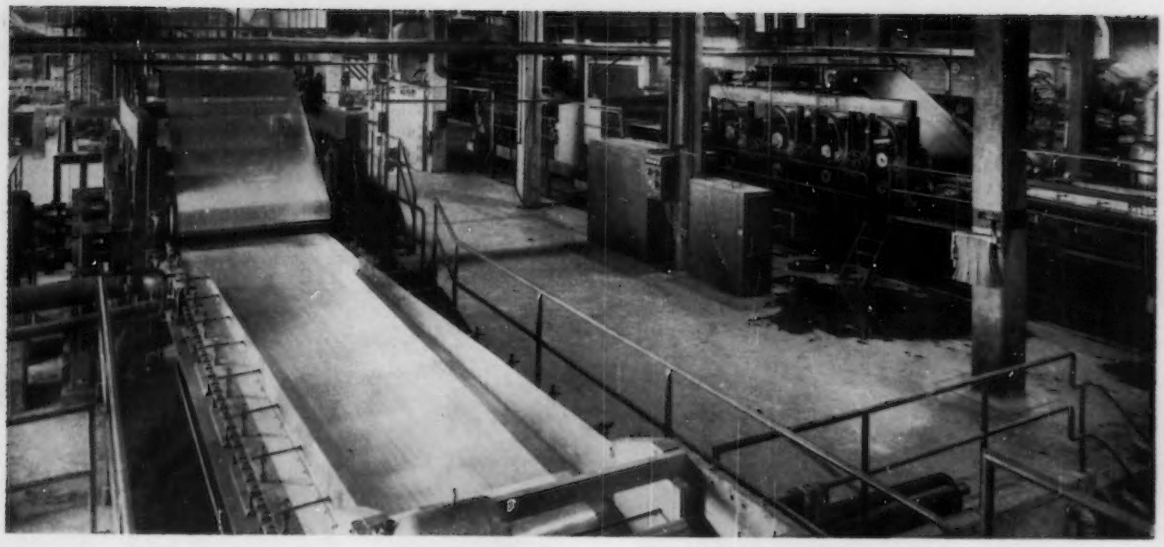
Past the cut-off position, irregular or poorly formed sheets can be dropped into a wet broke pulper situated above the couch pit. Acceptable sheets are transferred by conveyor laterally to run in pairs through the six deck 8 foot dryer. It is a two zone dryer heated by direct fired natural gas burners. After drying, the boards are trimmed on the dry trim saws to the correct dimensions and are ready for packaging and shipping. The trim and broken sheets are dropped into a shredder and the shredded dry broke is pneumatically conveyed to a hopper located over the dry broke hydrapulper.

Hardboard Forming Machine

The hardboard fourdrinier machine and press section, also built by Dominion Engineering Co. has a wire width of 60 inches. The machine is similar to the insulating board machine but has three instead of four press rolls. The headbox has a set of adjustable height dams to allow stock to be kept at a constant height with provision for overflow and return of stock to the fan pump for recirculation. The fourdrinier is a tilting non-cantilevered type having adjustable side deckles, with one stationary vacuum box and a Rotabelt. The presses are bronze with pre-set roll spacings and are spring loaded to give gradual pressure increases.

Pressing the Hardboard

As the board leaves the third press of the forming machine it is edge trimmed and cut to the proper length in the same manner as was done on the insulating board side. Any sheets that appear to be defective are dropped into a broke breaker located above the couch pit. Acceptable boards are loaded one at a time onto the caul plates and are then pushed simultaneously into the openings of the platen press. There are twenty openings in the hot press which is designed to give a maximum pressure of 800 pounds per square inch. The platens are heated by circulation of high pressure steam. These conditions of high temperature and pressure cement



Board Manufacturing Area

The two building board machines. Hardboard machine in foreground and the insulating board machine at right rear. The Prairie Fibreboard plant is the only one in Canada pulping straw since shutdown of the straw pulping operations of Hinde & Dauch at Trenton, Ont. The plant also represents the only pulp, paper or board operation in the Province of Saskatchewan.

the fibers with the natural lignin and give the hardboard the characteristics of high strength which distinguish it from insulating board.

The hardboard sheets from the discharge rack are carried to heat tempering chambers. After the heat treatment, the boards are transported to a humidifier where they slowly absorb five-eight per cent moisture. After this treatment they are in a stable condition for trimming on the dry trim saws. The boards are then ready for finishing, packing and shipping.

Steam, Power and Water

Steam is supplied by a 30,000 lbs. per hour 275 p.s.i. Dominion Bridge Co. boiler fired with natural gas. Steam requirements are relatively low in the mill since the dryer and the space heating units are direct fired. Gas is supplied by the Saskatchewan Power Corp. Water and electricity are purchased from the city of Saskatoon. Power is supplied to the mill at 4160 volts, is transformed to 440 volts for the motors having a horse power between 2 and 200. For smaller motors and lighting the 440 volts is converted to 110-220. All motors over 200 h.p. are direct connected to the 4160 volt three phase line. Water is supplied to the mill through a 12 inch main which flows into a 150,000 gallon reservoir located under the floor of the mill. The areas of the plant which are considered a fire hazard are protected by a sprinkler system. Fire hydrants are strategically located around the main mill building and throughout the straw and wood storage areas.

Summary

At present the mill is designed to produce 66,000 square feet of softboard ½ inch basis and 40,000 square feet of hardboard ¼ inch basis, per day. Production to date indicates that the 66,000 sq. ft. of softboard is very conservative and can be exceeded without much difficulty. The mill is now producing standard wallboard, asphalt sheathing and roof insulation, both plain and asphalt impregnated, in various thicknesses from ⅜ inch to 1 inch. In the near future a prime coater will be added and eventually additional equipment will be installed to produce all types of insulating and hardboard products.

Engineering of the plant was done by Stadler Hurter and Co. of Montreal. All general contracting, including installation of the machinery, was done by W. C. Wells Construction Co. of Saskatoon.

Acknowledgement

The authors wish to thank Robert W. Hauptli, vice-president and general manager of Prairie Fibreboard Ltd. for reviewing and granting permission for the publication of this paper.

Major Suppliers

Conveyors—Jeffrey Mfg. Co.

Boiler—Dominion Bridge Co.

Hydrapulpers—Black Clawson (Canada) Ltd.

Pumps—Ingersoll-Rand Co.

Refiner—Sprout-Waldron Co.

Washer—Paper Machinery Co.

Hydrafiner—Black Clawson (Canada)

Forming Machines and Presses—Dominion Engineering Co.

Wet Saw Tables and Transfer—Coe Manufacturing Co.

Dryer—Coe Manufacturing Co.

Heating and Ventilating—Ross Engineering Co.

Chipper—Sumner Iron Works

Asplund Defibrator—American Defibrator Co.

Tempering and Humidifying Chambers—Ross Engineering

Motors—Tamper Electric Ltd.

Engineers—Stadler Hurter & Co.

Hot Press—Trimont Corp.

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CONSTANTLY IMPROVING FELTS, Huyck's research project leaders, directing over 40 experienced scientists, engineers and technicians, meet regularly to discuss basic and application research.

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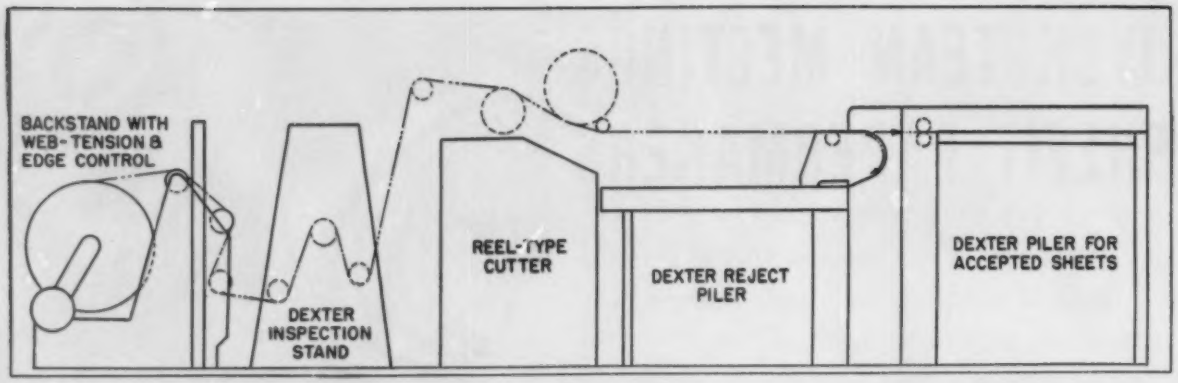


Drawing illustrating the various elements of the new paper finishing machine developed by the Dexter Co., Div. of Miehle-Goss-Dexter, Inc., in co-operation with the S. D. Warren Co., Cumberland Mills, Maine and the Champion International Paper Co., Lawrence, Mass.

New Paper Finishing Machine Being Evaluated at S. D. Warren

A new paper finishing machine has been developed by the Dexter Co. Division of Miehle-Goss-Dexter, Inc., Pearl River, N. Y., in co-operation with the S. D. Warren Co., Cumberland Mills, Maine and the Champion International Division of Oxford Paper Co., Lawrence, Mass. In one continuous operation the machine inspects the web for lumps or voids, sheets it to size, stacks good sheets smoothly and evenly ready for packaging and shipping, and directs defective sheets to a reject pile.

The machine, the first of its kind, has been under development for some four years and is currently being evaluated in daily operation at the S. D. Warren Co. It includes an unwind stand with automatic tension control rolls, inspection station, reel-type cutter, and layboys for first quality paper and rejects. Roll sizes may range from 32 to 82 inches in width and to 42 inches in diameter. Web may be sheeted in lengths ranging from 36 to 80 inches.

Memorizes Defects

The unwind stand is a shaftless type and web unwinds from it through tension control rolls to the inspection stand. This stand has two inspection stations, one which inspects for lumps, wrinkles, welts and the like, and the other which inspects for holes, tear outs and other voids. The inspection devices sense flaws by contacting and "feeling" the surface of the moving web.

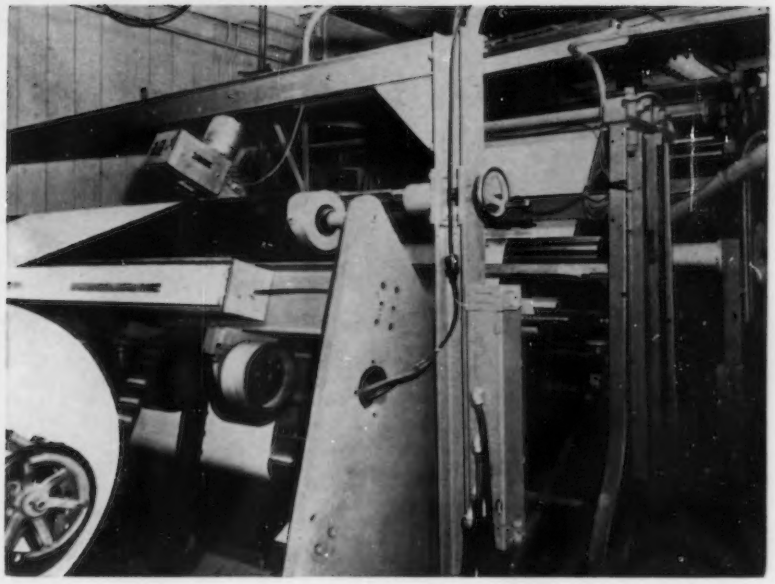
Should a defect be encountered, a memory device is signalled and when the imperfect sheet reaches a certain point on the tape bed, guide fingers raise from between the tapes and deflect the sheet to the reject pile. The machine can also be fitted with web markers to provide a visual indication of the location of the defects in the rejected sheets. The memory device is a magnetic tape type, engineered especially for the purpose by The de Florez Company, a design affiliate of The Dexter Company.

After leaving the inspection stand, web travels to the cutter which sheets it to size and discharges the sheets onto tapes for delivery to one of the two Dexter layboys. The good sheet piler is located at the end of the tapes and the reject piler is under them. A counter indicates the number of good sheets as they are piled and marker tapes are automatically inserted every 25, 50, 100, 250 or 500 sheets, depending upon customer preference.

Sheets Kept in Good Condition

Sheets are cut within 1/64 of an inch of nominal size, due principally to constant web-tension control at the unwind stand. An electronic side guide is used to keep the web travelling true and the machine is also equipped to trim web edges when this is desired. Trim is pneumatically conveyed to a waste cart.

Several steps have been taken to maintain sheets in perfect condition and to stack good sheets in such a manner that the completed pile is ready for shipping. Sheets travel 15 to 20 inches apart (are not overlapped) to permit one sheet partially to settle on the pile and be jogged before the next sheet arrives. Forwarding wheels which advance the sheet from tapes to pile automatically slow down as the last few inches of the sheet passes between them, thus retarding sheet speed (in excess of 400 feet per



Forward section of the finishing machine showing portions of the unwind stand, inspection stand, and cutter. Shown above one of the unwind rolls is the electronic device which controls edge register. Duct extending over aisleway just ahead of cutter pneumatically conveys edge trim to a waste cart.

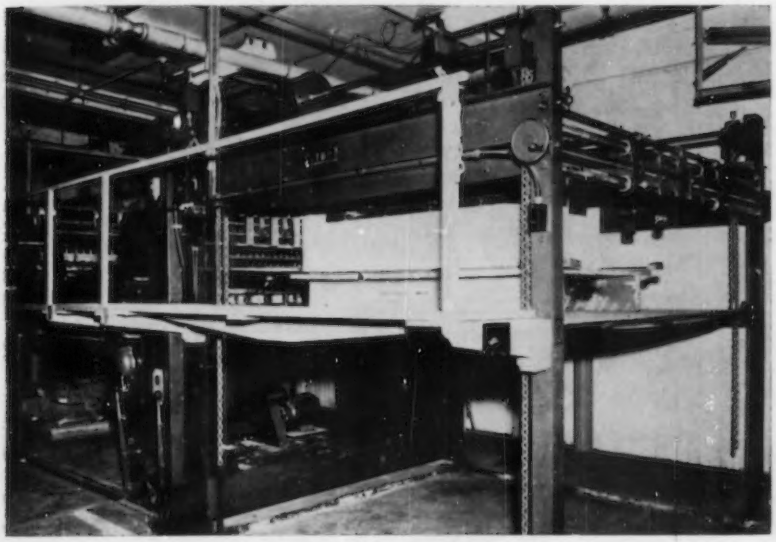
min.) to prevent damage to the front edge upon hitting the piler stops. Timed air is blown onto the top of the sheet as it reaches the pile to hasten settling. Side joggers are drilled with holes countersunk on the pile side so that sharp oscillation of the joggers from the pile creates a fanning effect and quickens the exit of air from beneath the settling sheet. Since there is less concern for the appearance of the reject pile, the reject piler has simpler slow down and jogging devices.

Two-roll Operation

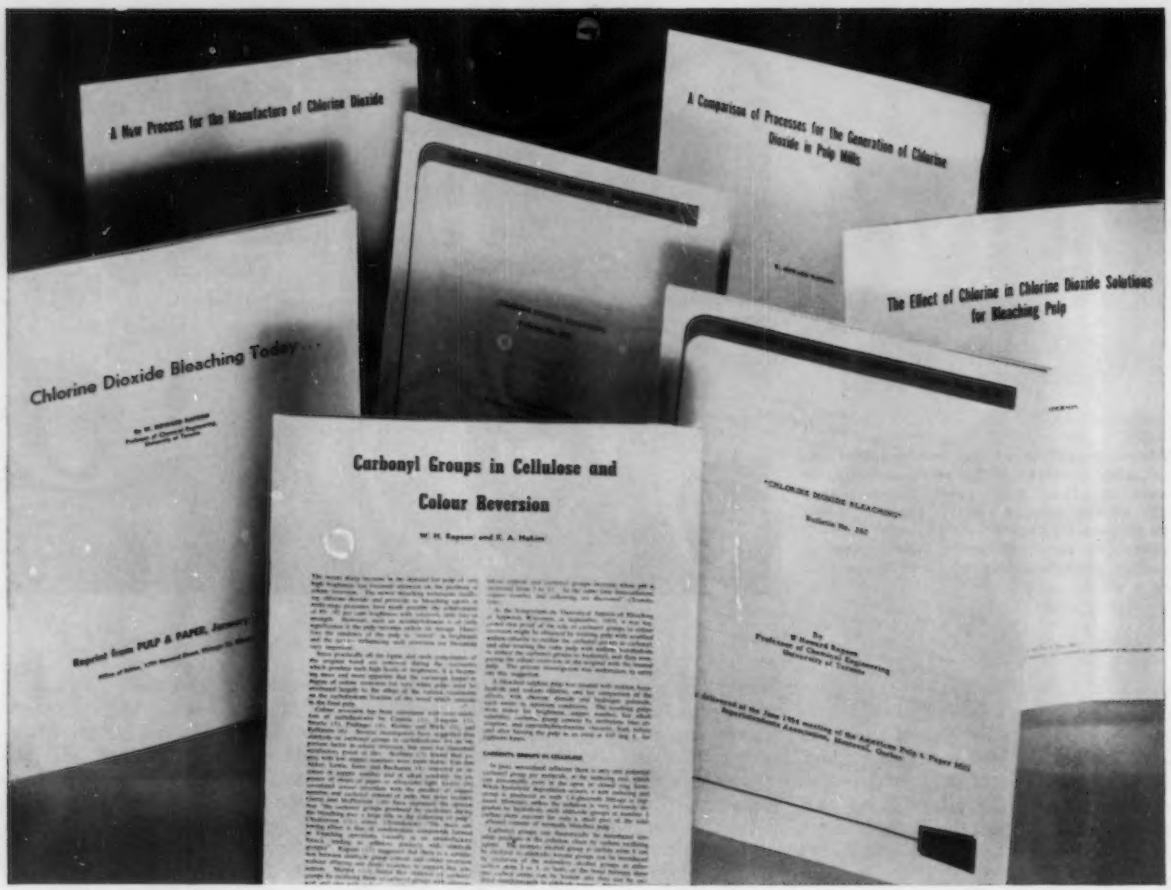
At present, the finishing machine is operated with a single roll. However, two-roll operation can be provided. Two-roll operation will involve two unwind stands and two inspection stations but will employ the present cutter and layboys. This will more than double the capacity of the more expensive portions of the equipment and is well justified economically despite the fact that for each defective sheet, one good sheet will be rejected. The small amount of wasted good paper can well be afforded for the additional production achieved, or alternately the rejects can be resorted to reclaim the good paper.

The general goal in inspecting paper is to furnish the printer with stock which will not contain lumps or foreign matter which might cause type smash-ups, will not contain holes through which ink could pass and require down-time for press wash-up, and will not have turned corners or short sheets which would cause press trips. The finishing machine sensitivity setting in any given case will depend upon the standards for the particular grade of paper and upon mill requirements. More than sufficient sensitivity is provided in the instruments to permit detection of defects smaller than those normally requiring removal.

A feature of this machine is the piler platform less than 2 inches thick carrying loads to 4 tons.



View from the rear of the finishing machine showing the Dexter piler which stacks good paper ready for shipping. Unique piler platform is less than 2" thick yet carries loads weighing to 8000 lbs. Preceding the piler are the Dexter layboy and cutter. Reject paper is collected on a piler beneath the conveyor tapes.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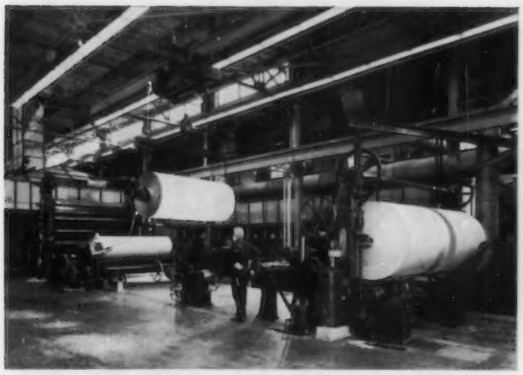

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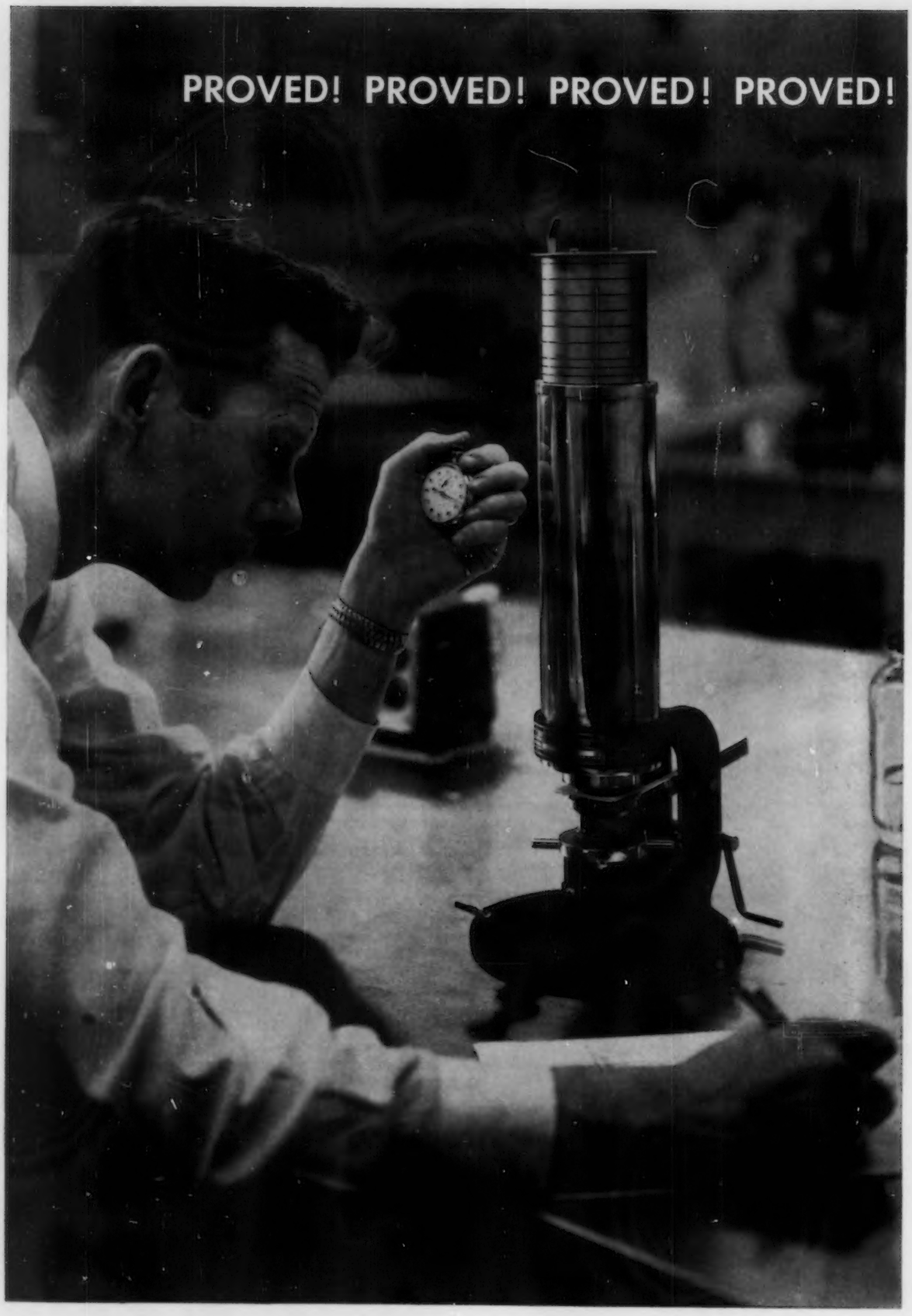
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B. Elmblad

R. J. Enroth

Whiting Corp., Harvey, Ill., announces two appointments: Bruce Elmblad has joined the sales staff of the New York District Office.

Mr. Elmblad joined Whiting in 1956. He was graduated from the United States Military Academy at West Point in 1951 with the rank of second lieutenant. He served on active duty until December, 1956, leaving the service with the rank of captain.

Robert J. Enroth joined the sales force of the Chicago District Office.

Mr. Enroth, 1951 graduate of the University of Illinois, will work primarily in Engineered Sales Products at the Chicago Office. He joined Whiting in 1956 as a sales trainee.

Electric Reduction Co., of Canada, Ltd., Toronto, has established a new division, ERCO Engineering Services, to design, construct, install and start up package chlorine dioxide plants for pulp bleaching or other uses, it has been announced by Dr. D. E. Jones, president.

The new division will design plants to fit into the particular location required and be sold on a "turn-key" basis with a guaranteed minimum operating efficiency, including the training of personnel. The new service is believed to be unique in the Canadian chemical industry.

The Sinclair Co. of Holyoke, Mass. announces the appointment of Fred W. Greene, Jr. as Manager of its Customer Service Department. In this position Mr. Greene will have the responsibility of co-ordinating the Sales and Manufacturing Departments.

Mr. Greene came to The Sinclair Co. as its Purchasing Agent in 1950 and subsequently served in both the Sales and Manufacturing Departments.

Prior to coming to The Sinclair Co. Mr. Greene was employed at the Fay & Scott Co. in Dexter, Maine, and Franklin Machine & Foundry Co., East Providence, Rhode Island.

The company further announces the appointment of Mr. Gerald H. Cote as its general superintendent. Mr. Cote has been with The Sinclair Co. for twenty-five years and has had experience in all phases of its manufacturing operations. The general superintendent is a newly created position under which the operations of all manufacturing departments will be co-ordinated.

F. W. Greene

G. H. Cote

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Pulp Paper and Board Mill Maintenance

Based on actual in-plant experience and prepared by well known men in the paper industry, this 126 page book brings you in easy to read language procedures for plant maintenance of kraft mills, semi-chemical mills, bleach plants, fourdrinier and cylinder machines, stock preparation equipment, and other machinery used in pulp and paper making. Price: $2.50.

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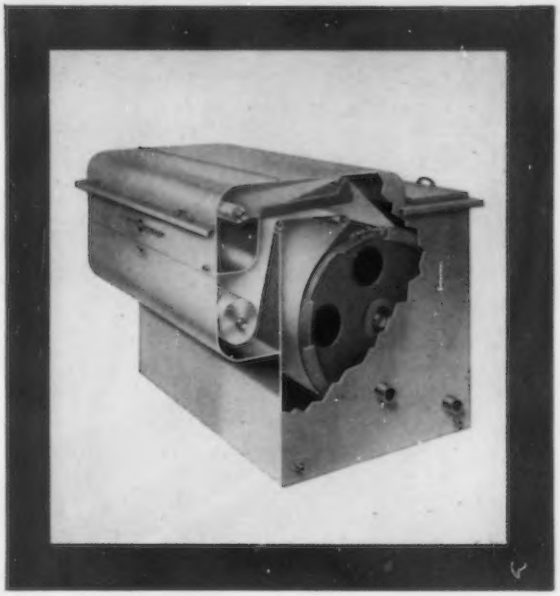
BELOIT UNIT MODERNIZATION

ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS



PATENTED

Lubrication costs excessive? Sludge deposits a problem?

Consider these advantages found in

Beloit Roll-Filter Lubrication System

Prompt, efficient filtering (no sludge deposits). Filtering medium can be renewed in minutes by one man (automatic if desired). Initial as well as replacement oil costs are held to a minimum. Clean, easy to maintain.

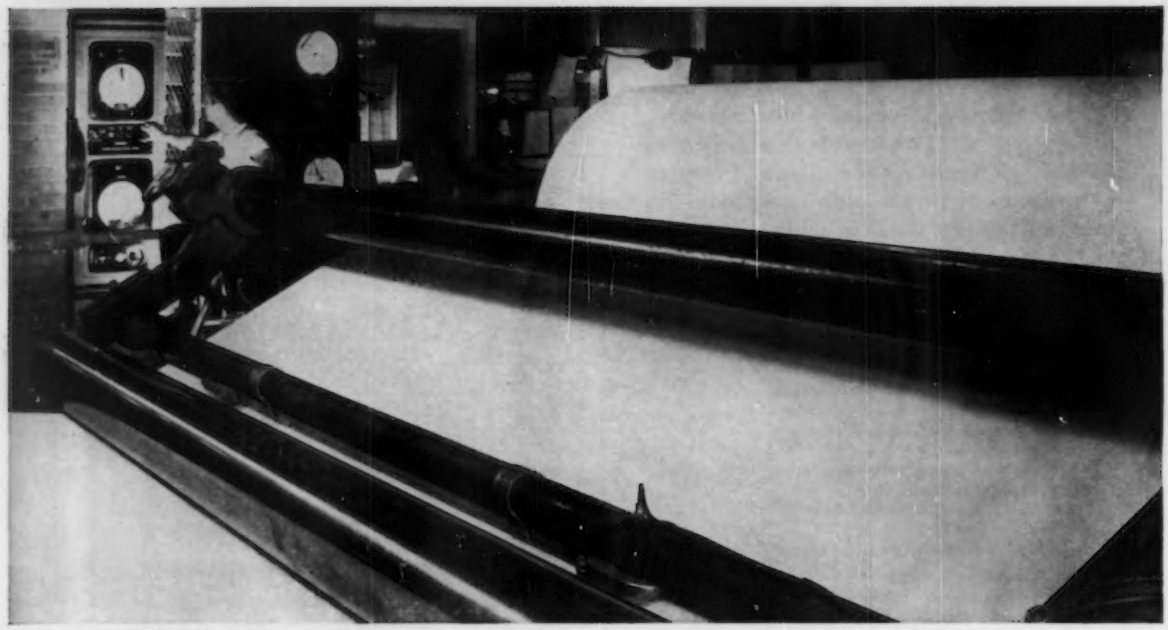
A patented Beloit Roll-Filter is available for any gallonage requirement—from 30 gpm systems to 100 gpm systems. Requires little space!

» **ACT!** *Write for specific information about a Beloit Roll-Filter Lubrication System to meet your needs. Write to Beloit Iron Works, Beloit, Wisconsin.*

100 YEARS

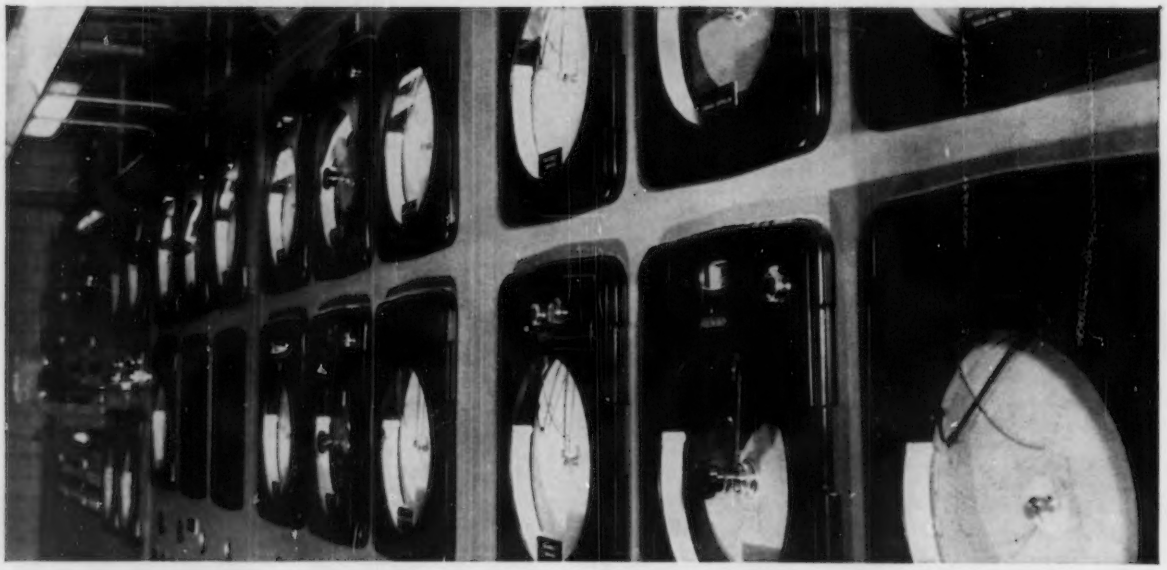
BELOIT
PAPER MACHINERY
your partner in papermaking

Paper-making processes stay



◀ MOISTURE CONTROL SYSTEM on #6 paper machine, Hammermill Paper Company, Erie, Pa. Unique Foxboro sensitive element measures 5 feet across paper — provides wide-span average measurement for fully effective machine control. Foxboro moisture control helps maintain paper uniformity — saves on steam as well.

▼ DIGESTER TEMPERATURES for Kraft Digester at Bowaters Southern Paper Corp., Calhoun, Tenn. are recorded on these Dynalog Electronic Instruments. To insure best possible digester circulation, Dynalogs record temperature measurements from both top and bottom of digesters. Second pen records continuous measurement of digester pressure. Other instruments on panel are Foxboro cam-set Steam Flow Controllers.



FOXBORO DYNALOG

REG. U.S. PAT. OFF.

on schedule . . .

with "no-maintenance" Foxboro Dynalog* Recorders

You'll find Foxboro Dynalog Electronic Instruments at work everywhere in a paper mill — measuring and controlling more than a dozen completely different paper processing variables.

Dynalogs give higher sustained measurement accuracy and greater freedom from maintenance than conventional potentiometers. They are free of drift — require no standardization, lubrication or alignment.

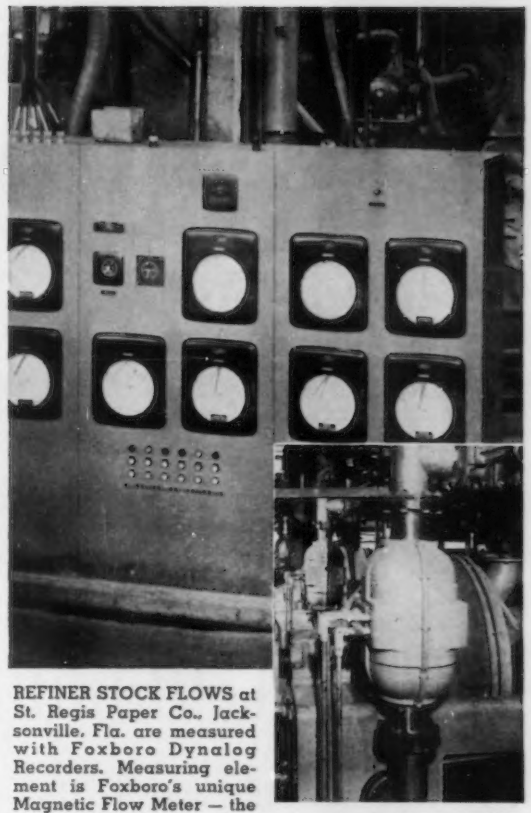
Dynalog design eliminates the slidewire and other moving parts found in conventional electronic recorders. Instead, a simple, variable radio-type capacitor with silent magnetic drive gives stepless continuous balancing. Smooth faster response without waste motion or wear.

For sustained high accuracy and freedom from maintenance, investigate sensitive Dynalog recorders — with fully-automatic pneumatic control action. They can be used for any electrical measurement . . . resistance, voltage, capacity, inductance. Write for Bulletin 20-10 — it gives all the details. **The Foxboro Company, 2312 Norfolk St., Foxboro, Mass.**

*Reg. U. S. Pat. Off.

Other paper-making processes using Foxboro Dynalogs

- basis weight control
- pH of machine furnish
- evaporator boiling-point rise
- conductivity for caustic and alum dilution; brown stock washer filtrate
- ORP for pulp chlorination; bleach liquor
- motor load for refiners, grinders, blow tank agitators
- multi-record temperature measurements
- density of lime-mud
- . . . and many others



REFINER STOCK FLOWS at St. Regis Paper Co., Jacksonville, Fla. are measured with Foxboro Dynalog Recorders. Measuring element is Foxboro's unique Magnetic Flow Meter — the meter with no flow restrictions. Dynalog instruments also insure proper stock blending to paper machines.

SHEET WEIGHT PROFILER measures and records variations in the basis weight of full-width test samples of paper at American Box Board Co., Filer City, Michigan. Dynalog Strip Chart Recorder provides accurate deviation records all the way across the sheet.

ELECTRONIC INSTRUMENTS

CHLORINE?

CALL DIAMOND

for fast service

You get immediate shipment from one of four strategically located Diamond plants. Fast, efficient, dependable service for the chlorine you need.

Ask about these other Diamond Chemicals too:

Diamond Caustic Soda . . . available when and where you need it—by barge, tank car, tank truck or drum.

Diamond Soda Ash . . . 58% light and dense—delivered as you want it, from carloads to trainloads, in bags or bulk.

Diamond Salt Cake . . . shipped where and when you want it, in covered hopper or boxcars.

DIAMOND ALKALI COMPANY, 300 Union Commerce Building, Cleveland 14, Ohio.

Sales Offices: Chicago, Cincinnati, Cleveland, Houston, Memphis, New York, Philadelphia, Pittsburgh, St. Louis.

Chlorine-Caustic Soda Plants: Edgewood, Md. • Deer Park, Tex. • Muscle Shoals, Ala. Painesville, Ohio.

Diamond Chemicals®

W. V. Cross

J. M. Knox

National Aluminate Corp., Chicago, names William V. Cross product manager, Process Antifoam Department. He will manage sales and technical service activity on antifoams for the Industrial Division. From 1952 to 1957 Mr. Cross served as area manager in the Eastern District, concentrated on sale and service of antifoams to paper mills in the Eastern Pennsylvania, New Jersey area. Since 1947 he has been manager of sales development for the Ion Exchange Division. He has been with National Aluminate Corp. 10 years.

Research-Cottrell, Inc., Bound Brook, N. J., has elected James M. Knox president. Mr. Knox assumed office November 1.

The retiring president, Carl W. Hedberg, will continue as a director of both Research-Cottrell and the parent Research Corporation. Mr. Hedberg had served with Research Corporation for 35 years and had been the first president of the subsdiary, Research-Cottrell, since 1954.

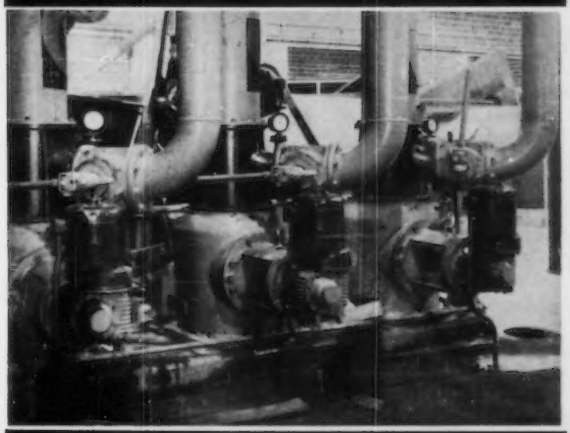
Mr. Knox previously had served as executive vice-president since early this year. He had joined Research Corporation as financial vice-president in 1951, and since the formation of Research-Cottrell, Inc. in 1954, had also been secretary-treasurer and a director of the subsidiary company.

H. G. Guy

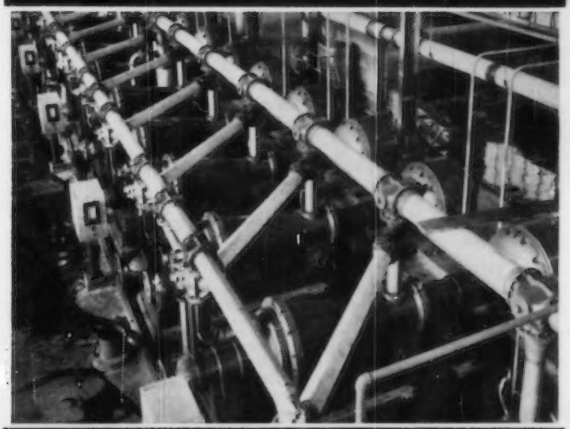
Koppers Co., Inc., announced Hubert G. Guy has been named technical director of coatings in the marketing department of the Plastics Division.

Mr. Guy, who joined Koppers in 1941, had previously held the position of manager of the Application Laboratory. In his new position he will be in charge of all development work conducted with materials for coatings in the paint, paper and textile industries.

DeZurik Valves



...Straight-Way...



..or Multi-Port..

the finest in the field!

The effortless operation . . . the dead-tight shut-off . . . the freedom from constant maintenance — these features are yours with DeZurik Valves in straight-way or multi-port styles!

And you'll find they last longer, too!

Judged by any standard, DeZurik Valves give you more of what you want . . . more of what you need!

Write for recommendations.

DeZURIK CORPORATION
SARTELL, MINNESOTA

BELOIT UNIT MODERNIZATION

ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS

Need replacement bearings?

Whether you need a paper machine bearing for stock or emergency replacement call on Beloit.

Beloit's bearing inventory offers a wide range of bearings commonly used in the paper industry. As a matter of fact, Beloit Iron Works maintains the largest stock of paper machine bearings in the world. Call on Beloit first. You will be pleased with the price and the prompt delivery.

» ACT! *Complete inventory enables us to meet emergency needs promptly. Send inquiries to Beloit Iron Works, Beloit, Wisconsin.*

100 YEARS

BELOIT
PAPER MACHINERY
your partner in papermaking

STOP NOZZLE PLUGGING

RONNINGEN FILTERS

Ronningen Triplex 316 stainless steel filter with one filter removed for inspection.

316 stainless steel; steel; bronze; aluminum.

Manual or automatic. For water, petroleum, chemicals. Quick-coupling disconnect; reconnect in 60 seconds—no tools. Non-short circuiting. Filter element electric welded. Capacities, 10 to 1600 GPM. Pressures to 300 psi. Temperatures to 400°F. 20 to 700 mesh.

Write for Bulletin #45570, Dept. J
STRAIN AGAIN WITH RONNINGEN
"Particles large or small, we filter them all"

RONNINGEN - PETTER CO.
Vicksburg, Michigan Phone: Midway 9-5911
Representatives throughout U. S. and Canada

SAVE a quarter of the cost and get COLOR STABILITY, too

With EVERFLEX MC-300
Micro-Particle Paper Coating Emulsion
Write For Free Brochure
W.R. GRACE & CO.
DEWEY AND ALMY CHEMICAL DIVISION
CAMBRIDGE 40, MASS.

OBITUARIES

Arthur Fleming Bass, 65, of 4502 Broad Rock rd., retired assistant superintendent of the Standard Paper Co., died Friday at a local hospital.

He retired from the paper concern in 1956, after 34 years of service.

Roland G. Sloat, 74, former superintendent of mills for the Hinde & Dauch Paper Co., died after having suffered a heart attack.

Mr. Sloat retired Sept. 1, 1954. He had been with the company 29 years. He joined Hinde & Dauch as electrical engineer, a position which took him to various plants and properties throughout the U. S. and Canada.

Frank S. McNeil, 58, vice president of the Niagara Envelope Co., Buffalo, N. Y., since 1952, died Nov. 25. He had been in the envelope business in Buffalo for the last 38 years, joining Niagara Envelope in 1946.

Ray Albert White, 59, owner and manager of the Southern Paper Box Co., died on Nov. 30.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1958	Nov. 1 91.1	Nov. 8 91.5	Nov. 15 91.5	Nov. 22 91.7r	Nov. 29 87.0
1957	Nov. 2 94.6	Nov. 9 91.1	Nov. 16 91.9	Nov. 23 92.7	Nov. 30 87.0

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	86.9	89.5	89.5	88.1	86.4‡	86.2‡	76.0‡	89.8‡	86.7‡	91.4‡	—	—	—
1957	94.2	97.0	97.1	94.0	94.6	93.3	75.6	90.7	86.0	93.0	90.7	81.5	90.9

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1951	1952	1953	1954	1955	1956	1957	1958
Year to Date	99.7	90.6	93.7	92.1	95.4	98.5	91.2	86.9
Year Average	98.0	88.6	92.3	91.6	94.0	97.9	90.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

1958	Nov. 1 95	Nov. 8 93	Nov. 15 94	Nov. 22 94	Nov. 29 88
1957	Nov. 2 94	Nov. 9 94	Nov. 16 94	Nov. 23 94	Nov. 30 86

COMPARATIVE MONTHLY SUMMARIES

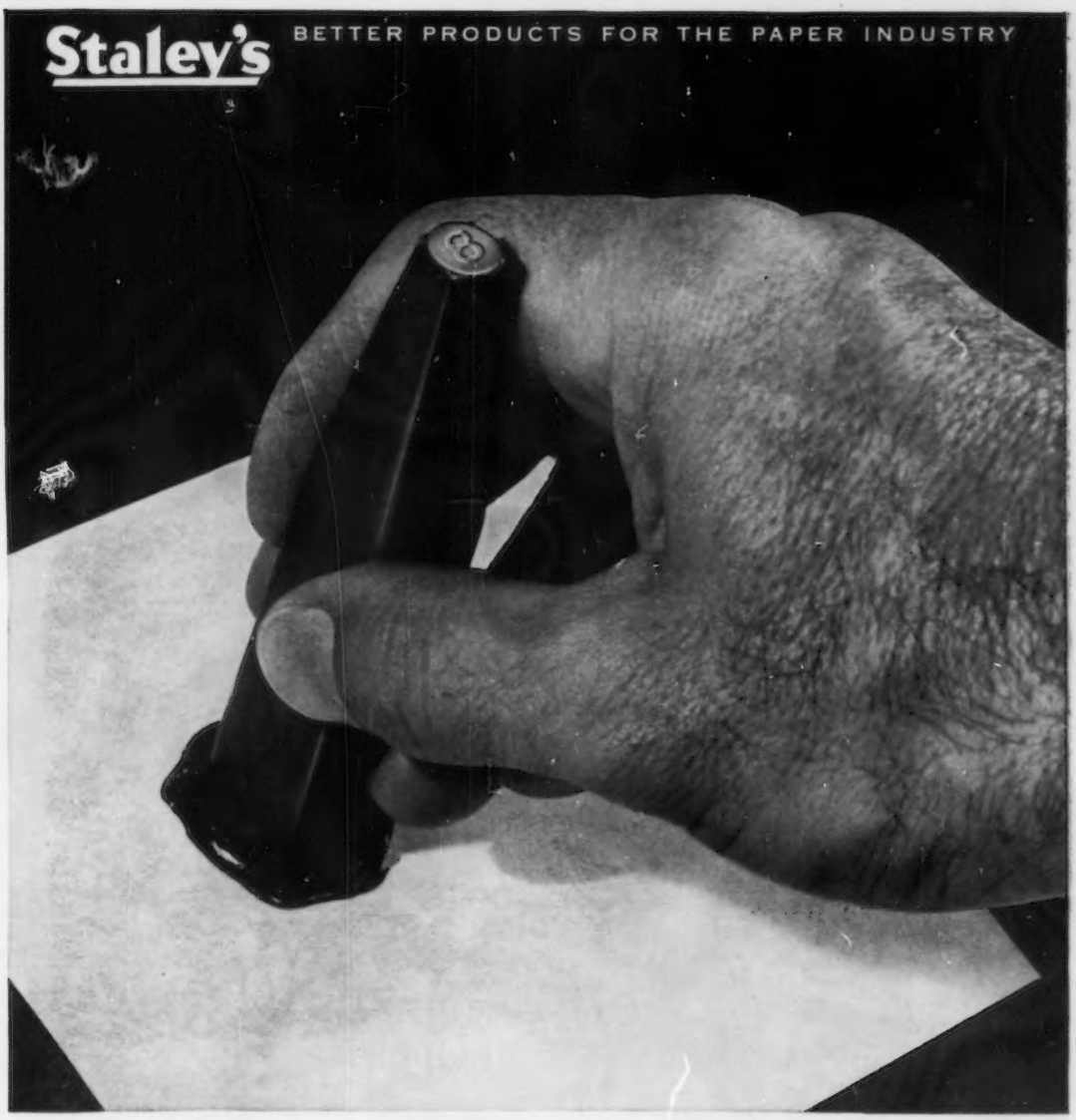
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1958	80	86	88	84	84	86	76	93	90	95	—	—	—
1957	91	94	94	92	93	91	72	94	91	97	92	79	90

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING Nov. 29, 1958	LAST WEEK ENDING Nov. 22, 1958	CUMULATIVE TO DATE Jan. 1 to Nov. 29, 1958
% Activity	88%	94%	87%
TOTAL	286,263	306,086	13,074,811
Liner	99,307	107,203	4,399,990
Corrugating Material	44,662	46,240	1,978,995
Chip & Filler Board	4,385	4,841	229,476
Total Containerboard	148,354	158,284	6,608,461
Folding	50,176	56,433	2,480,691
Set-Up	11,644	12,123	521,149
Special Food Board	24,894	26,672	1,206,084
Other	51,195	52,574	2,258,426
Total Boxboard	137,909	147,802	6,466,350
TOTAL ORDERS			
Received	259,412	272,186	
Unfilled End of Week	369,636	398,251	

Staley's BETTER PRODUCTS FOR THE PAPER INDUSTRY



WAX-PICK TESTS PROVE...

Staley's new Stadex® Dextrin 140 gives greater binding strength in higher-solids coating colors

Higher adhesive quality! Now you can use high-solids coatings of low viscosity *without sacrificing surface strength.*

Staley's new improved Stadex Dextrin 140 solves the problem of poor binding strength in high-solids coatings once and for all. Stadex Dextrin 140 is a high-solids clay coating adhesive with excellent stability, viscosity and binding strength characteristics. Used in combination with Stayco® (oxidized) starches, Stadex Dextrin 140 produces a coating of high adhesive quality.

Long a standard in the paper industry, Stadex 140, like all Staley dextrins, is now made by a brand new dextrinization technique that guarantees you even better adhesives of top quality, minimum color and unparalleled uniformity.

Why not get the full story on Stadex 140 for yourself now?

See your Staley representative or write us for details today.

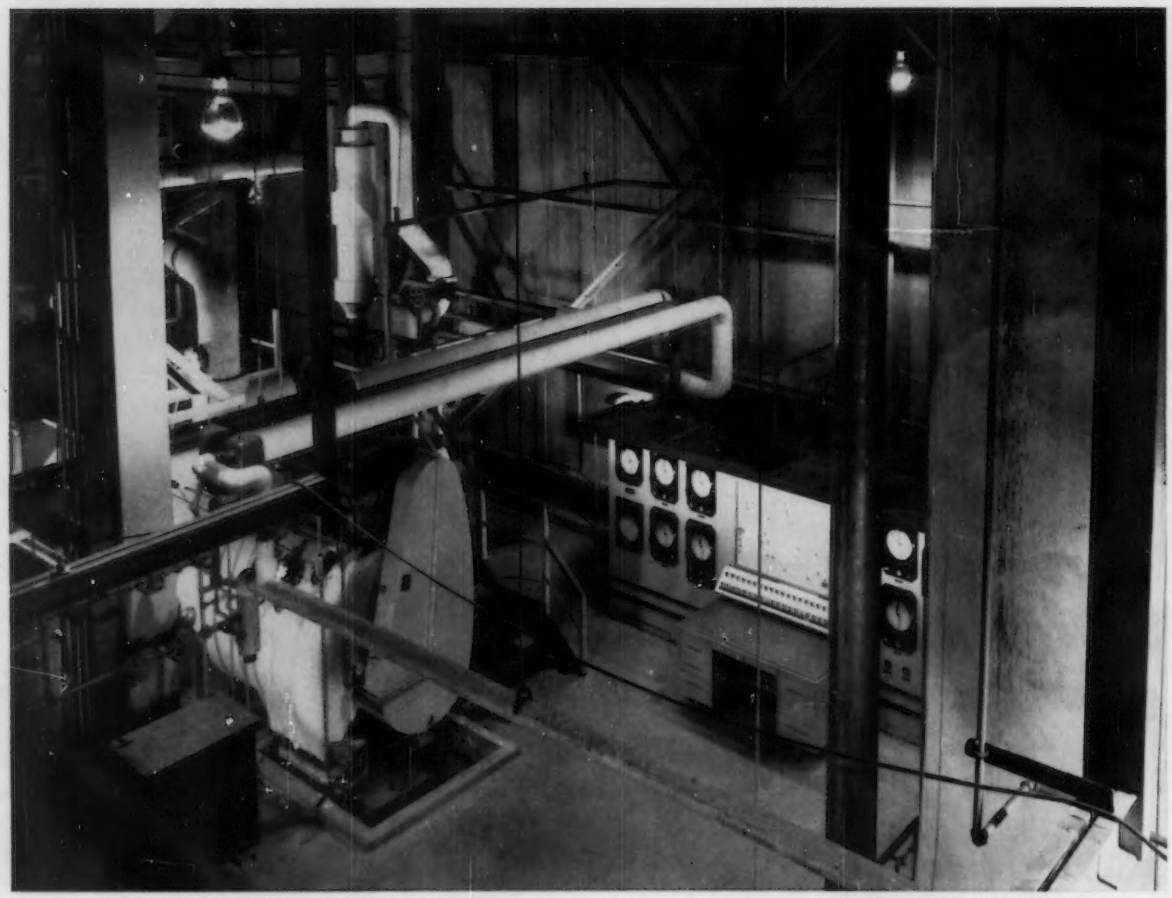
Staley's®

A. E. Staley Mfg. Co., Decatur, Ill.

Branch Offices: Atlanta · Boston · Chicago · Cleveland · Kansas City · New York · Philadelphia · San Francisco · St. Louis

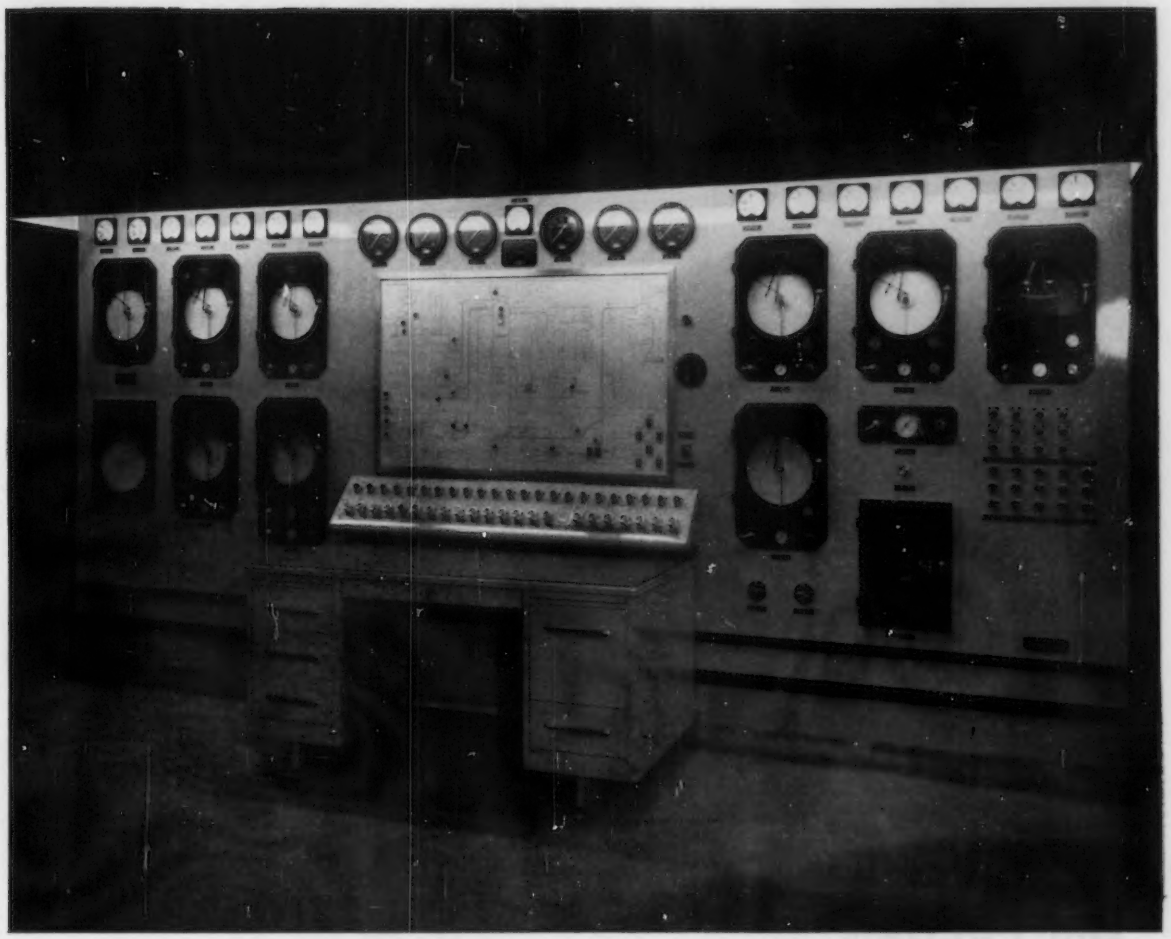
EASTERN assured of uniform quality stock

Another Taylor controlled Kamyr Continuous Digester System



Operating floor of the Lincoln, Maine, Mill, showing convenient location of control panel.

Taylor Instruments



Control panel for Kamyr Continuous Digester System at the Lincoln division of EASTERN Fine Paper and Pulp Division, Standard Packaging Corp.

FULLY AUTOMATIC . . . FULLY DEPENDABLE

EASTERN Fine Paper and Pulp Division, Standard Packaging Corp., Bangor, Maine, selected time-proven Taylor FULSCOPE* Controllers for their new Kamyr Continuous Digester System at their Lincoln division. Because the process is in full time operation, accurate, dependable control is vital.

Taylor engineers worked closely with Kamyr to perfect the system and to ensure fool-proof automatic operation of this key process. An important feature is that product specifications can be changed while on stream and can be maintained as long as desired.

The operation of the process can be traced by lights on a flow diagram, shown above in center of control panel. Both audible and visible alarms give added protection to the entire system. Complete start-up service was provided to thoroughly instruct personnel. Eastern reports that the system went on stream most satisfactorily.

Eastern's Lincoln division has a capacity of 350,000 pounds per day and produces Bond, Ledger, Mimeograph, Duplicator and Specialty papers.

Engineers and constructors were The Rust Engineering Co., of Pittsburgh, Pa.

Here is a fine example of cooperation between customer, equipment manufacturer, engineers and constructors and instrument manufacturer, working together to ensure a high quality product.

If you're about to modernize or build a new plant, be sure to see your Taylor Field Engineer, or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Ontario.

*Reg. U.S. Pat. Off.

MEAN ACCURACY FIRST

A New Filling Combination that will SAVE MONEY IN YOUR MILL

E.D. Jones

Adapta-Plug

and FULBAR SHELL FILLINGS

Adapta-Plug - a revolutionary advance, this is strongest plug design developed; completely bandless; easiest to strip and fill.

Fulbar Shell Fillings - rigid, one-piece, with no keys or wedges, saves hours of installation time. Famous Nowave design. Made to fit shell of any Jordan.

Our Sales Engineers Can Furnish Proof

Ask your Jones representative or write for Bulletin EDJ-1094

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Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

In Canada:

The Alexander Fleck, Ltd., Ottawa

PRICES OF FIBERS

MARKET WOOD PULP

FOURTH QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$ 82.50/ 90.00	$$90.00/ —	$$80.00/ —	$$90.00/ —
Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	$152.00/162.50*		$157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		$137.00/ —		
Kraft, Semi-bleached	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*155.00/ —	155.00/ —
Sulphite, Bl. Hdwd.	150.00/ —				
Sulphite, Unblchd	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		134.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	150.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED NOV. 25

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	$8.75/7.50	7.40/7.15
3	$8.00/7.00	$7.75/6.00	7.25/6.75	6.90/6.65
4	7.00/5.75	5.75/5.50	6.25/5.75	6.15/5.90
5	5.75/5.00	5.00/4.75	5.50/5.00	5.25/5.00
6	5.00/4.00	4.25/4.00	4.50/4.25	4.50/4.00
7	4.00/3.00	3.50/3.25	4.00/3.00	2.75/2.50

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

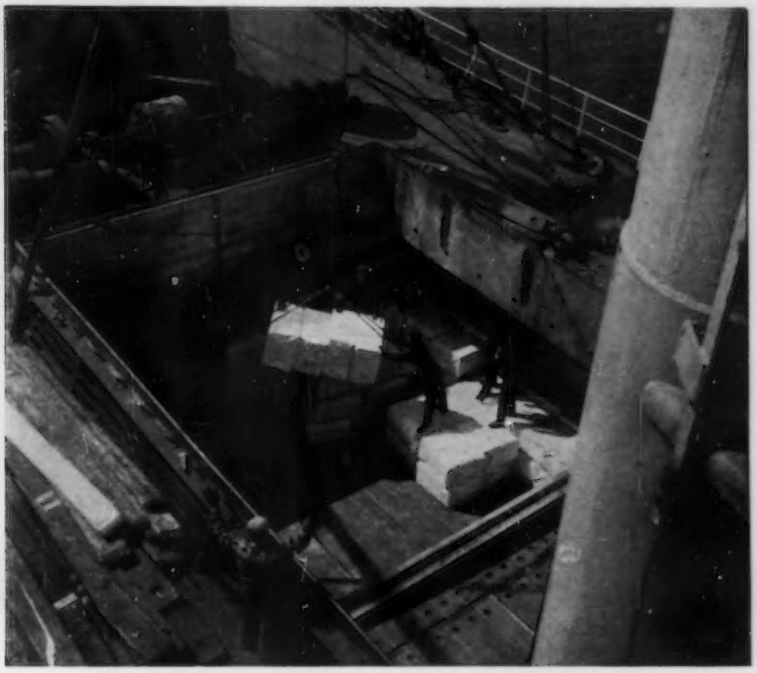
These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Dec. 8	Dec. 8	Dec.	Dec.
No. 1 Mixed Paper	$10.00/ 11.00	8.00/ 10.00	9.00/ —	14.00/ 15.00
No. 1 News	14.00/ 15.00	15.00/ —	20.00/ —	17.00/ 18.00
Overissue News (Lg. size)	16.00/ 18.00	12.00/ 14.00	25.00/ —	22.00/ —
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	12.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	25.50/ 24.00	25.00/ —	25.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	35.00/ 40.00	35.00/ —	55.00/ 57.50
New Double Kr. Ld. Corr. Cuts	35.00/ 37.50	42.50/ —	37.50/ —	35.00/ 37.00
(Semi-chem. medium)	37.50/ 47.50	45.00/ 50.00	45.00/ 50.00	35.00/ 36.00
New 100% Kraft Corr. Cuts	40.00/ 42.50	50.00/ 55.00	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ 57.00
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ 58.00
New Br. Kr. Bag Waste Unprintd	60.00/ 65.00	65.00/ 75.00	62.50/ —	58.00/ 60.00
No. 1 Groundwood Shvs.	25.00/ 30.00	22.50/ 27.50	22.00/ —	35.00/ 42.00
White Newsblanks	60.00/ 65.00	50.00/ 57.50	45.00/ —	55.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	55.00/ —	67.00/ 70.00
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	65.00/ —	— / —
Hd. White Shvs.	90.00/ 95.00	95.00/105.00	85.00/ —	95.00/ 97.00
Hd. White Env. Cuts	105.00/110.00	110.00/115.00	90.00/ —	113.00/ —
Col. Tab. Cards	60.00/ 65.00	60.00/ 67.00	52.50/ —	38.00/ 42.00
Manila Tab. Cards	80.00/ 85.00	75.00/ 85.00	75.00/ —	65.00/ —
No. 1 Col. Ledger	32.50/ 37.50	25.00/ 30.00	45.00/ —	29.00/ 35.00
White Ledger	60.00/ 62.50	57.50/ 62.50	57.50/ —	50.00/ 55.00
Mixed Book & Mag.†	20.00/ 23.00	18.00/ 21.00	14.50/ —	— / —
No. 1 Books‡	25.00/ 30.00	20.00/ 22.00	32.50/ —	14.50/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

THIS IS GASPESIA SULPHITE COMPANY

BALES OF GASPESIA BLEACHED SULPHITE PULP for export are loaded into the hold of a 10,000-ton ocean-going vessel.



HERE'S WHY IT WILL PAY YOU TO BUY PULP FROM GASPESIA

At Gaspesia we enjoy many natural advantages. Northern spruce and balsam fir—slow-growing, long-fibered, best for sulphite pulp—are the sole sources of the pulp you receive from us. Our access to nearly a million acres of these fine trees assures you a dependable, top-quality supply.

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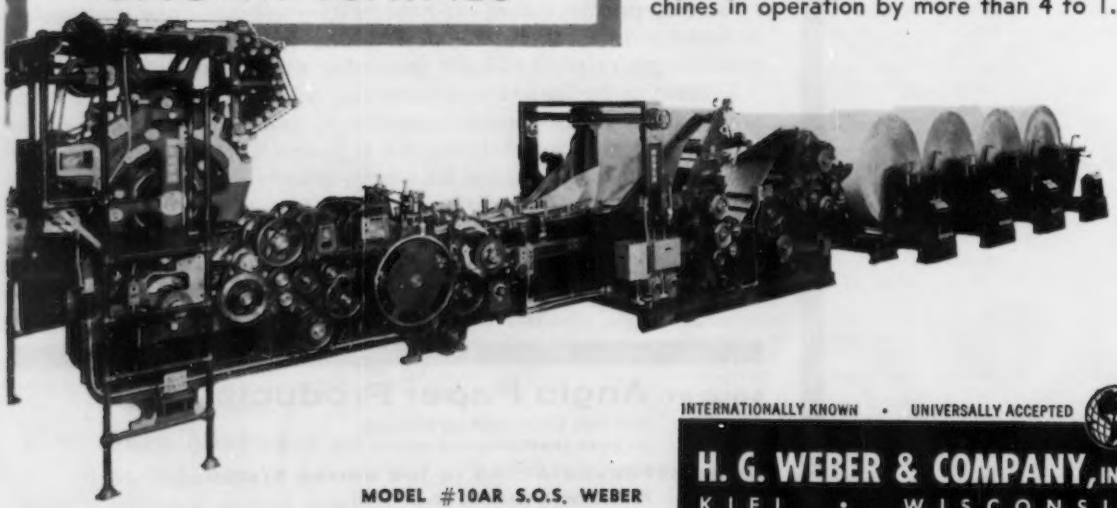

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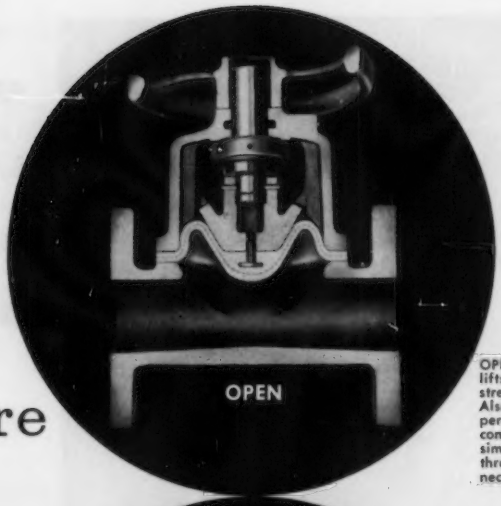
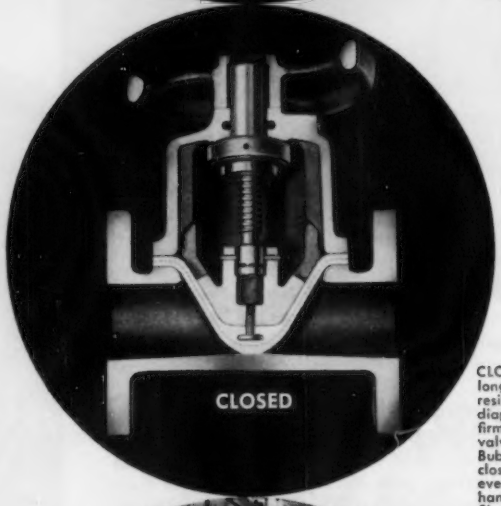


OPEN Diaphragm lifts high for streamline flow. Also, valve design permits comparatively simple rodding through, when necessary.



CLOSED Despite long usage, resilient diaphragm seals firmly against valve body. Bubble-tight closure is assured, even when handling gritty or fibrous materials.

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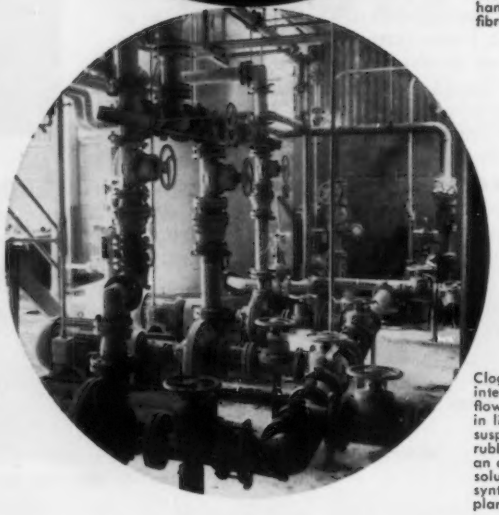
These advantages are in addition, of course, to benefits normally associated with the use of diaphragm valves . . . such as freedom from corrosion and clogging of working parts, since these are completely sealed off by the diaphragm; prevention of product contamination; elimination of stem leakage and routine maintenance, because there are no packing glands. Also, when properly pitched, lines are self-draining.

Grinnell-Saunders Straightway Diaphragm Valves are available in a choice of body sizes and materials, linings and diaphragms. Handwheel or power operated. For complete information, write Grinnell Company, Inc., 277 West Exchange St., Prov. 1, R. I.

*Patented



Clogging and interruption to flow is prevented in lines handling a suspension of rubber particles in an acid brine solution at this synthetic rubber plant.

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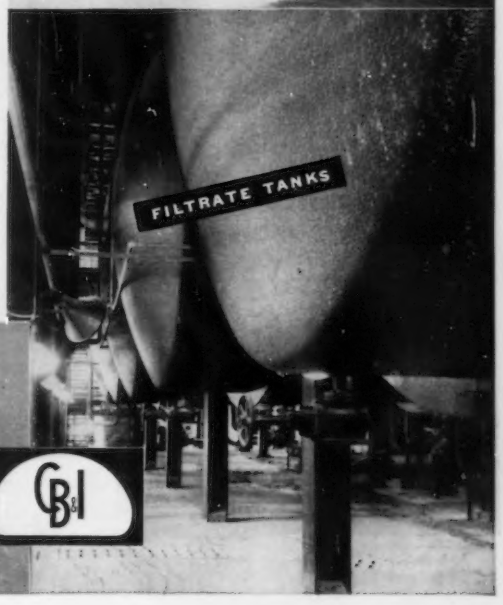

Above: Digester building at Jacksonville, Florida shows arrangement of some of the CB&I-built structures at expanded St. Regis pulp, paper and board mill. Accumulator was erected by CB&I and furnished through Foster Wheeler Corp.

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Fig. 1815 Globe Body Bottle Oiler

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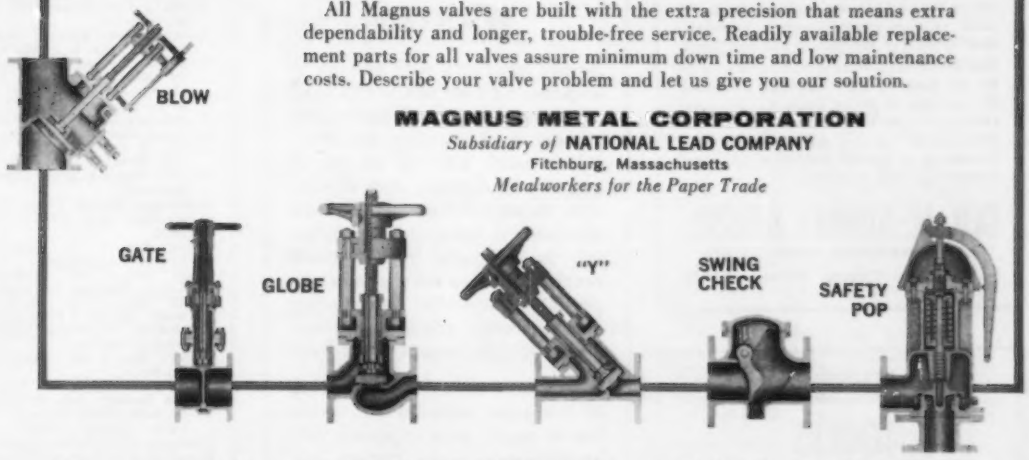

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1—62" Cameron Model 8; heavy duty
1—62" Cameron Model 6; 30" dia rewind
1— 62" Cameron Model 6; new 1951; 24" dia re.
1— 64" Cameron Model 8; 36" dia rewind
1—64" Johnstone Type 5—duplex
1—70" Center Winder w/variable speed motor.
1— 72" Cameron Model 26-3A duplex.
1— 72" Beloit shear cut; 40" dia rewind
1— 72" Hudson-Sharp high speed automatic
1—82" Langston Shear cut; 50" dia rewind
1—86" Cameron Model 8-10; 48" dia. rewind
1—110" Cameron Model 18; 60" dia rewind
1—124" Cameron quick change slitter assembly
1—148" Langston shear cut; A-F Brng; 60" dia rewind
1—194" Cameron Model 19; A-F Brng

STEAM TURBINE—PAPER MACHINE DRIVE
1—100 hp DeLaval w/reducer

SUCTION COUCH ROLLS
1—108" drilled face x 22" dia Sandusky
1—116" drilled face x 18" dia Sandusky
1—122" drilled face x 18" dia Sandusky
1—122" drilled face x 25" dia Sandusky
1—135" drilled face x 22" dia Sandusky
1—192" drilled face x 30" dia Millspaugh

SUCTION PRESS ROLLS
1— 90" drilled face x 18" dia Sandusky
1— 98" drilled face x 18" dia Sandusky
1—166" drilled face x 19" dia Millspaugh; used 2 mos; A.-F. Brng; rubber covered.
1—194" drilled face x 30" dia Millspaugh

SUPERCALENDERS
2—30" Norwood 4 roll
1—63" Norwood 8 roll; A-F Brng.
1—65" Norwood 8 roll; A-F Brng.
1—92" Norwood 7 roll w/drive

THICKENERS
1— 92" face x 36" dia cyl w/rubber couch; less vat
6—132" face x 36" dia cyl w/16" dia rubber couches; A-F Brng
1—132" face x 42" dia cyl w/16" dia rubber couch; A-F Brng

TRIMMERS—POWER BACK GAUGES
1—56" Seybold Dayton
1—74" Seybold 20th Century
1—84" Seybold 12Z
1—84" Seybold Dayton w/motor
1—94" Seybold Precision w/motor & air table

VACUUM PUMPS
2—H-4 Nash w/10 hp motors
1—L-4 Nash
1—L-5 Nash
1—H-5 Nash w/motor
1—H-8 Nash
1—#3 Nash w/25 hp motor
5—#2, #3 & #6 Nash Hytors
1—7 x 10 Connersville

VOITH INLETS
2— 86" Valley Iron Works
1—102" Valley Iron Works
1—144" B & S high speed w/headbox; SS clad
1—156" New Valley w/36" headbox; monel lined

YANKEE DRYERS
2—118" face x 5' dia.
1—132" face x 10' dia Beloit; 35 psi
1—140" face x 12' dia Beloit; 75 psi

WAXERS & COATERS
1—54" Mayer w/motor
2—62" Mayer w/motors
1—65" Mayer w/drive
1—76" Mayer w/Dowtherm system

MACHINERY FOR SALE

NEW BIRD 3A-100 BIRD SCREEN

1—New Bird 3A-100 screen—factory guarantee—never used—copper tub—heavy duty cylinder—dual motor—shower pipes—inlet and overflow box—brand new—never used—immediate delivery.

BALERS—1—Economy—size 30—all steel hand baler—30 x 16 x 36.
3—Economy all steel baler—chamber dimensions 25 x 45 x 48—hand operated.

BARKERS—1—Sandy Hill Peppy Peeler—takes logs from 3" to 20" diameter—takes wood 4' long up to 8' long—peels hard and soft woods.

BIRD CLEANERS—8—Bird Centrifiners — multi-stage—type XR—with 20 HP West. motors and collection boxes—new 1941.

CALENDER STACKS—1—9 roll 150" calender stack.
1—6 roll open way stack—94" wide—erected on foundation.

CHIPPERS—1—Carthage 4 knife 88" chipper—19" spout—complete unit—belt driven with 150 HP motor—440/60/3—controls—belts, etc.—large supply chipper knives.
1—Carthage 4 knife 47" chipper—right hand—spout 8" x 10"—designed for V-belt drive.
1—24" Appleton 4 knife chipper—with spout—late model pilot plant for small commercial operation.
1—8 knife 88" Carthage chipper—complete with 16" spout—bed knife, etc.

COMPRESSOR—1—8" type HTV Bingham horizontally split shell—double suction turbine compressor—all parts coming in contact with the gas are made of KA2MO (corresponding to type 316) heat-treated stainless steel—except packing rings, etc. which are made of high chrome—non-seizable heat-treated steel with shaft for direct connection to 100 HP, 2300 V, 665 rpm motor at which speed the capacity is 1200 cfm @ 12 p.s.i., including motor.

CONSISTENCY REGULATORS—3 — Brammer SS consistency regulators with air-controls.
1—Poirer SS consistency regulator with stuff box and valve—type A.
1—Poirer SS consistency regulator—type C.

CYLINDER MOULDS AND COUCH ROLLS—
10—cylinder moulds—36 x 110
10—soft rubber couch rolls—20 x 112
1—cylinder mould—36 x 114—rebuilt
2—cylinder moulds—36 x 100
1—cylinder mould—36 x 109
1—soft rubber couch—18 x 110
1—cylinder mould—42 x 100
1—cylinder mould—36 x 96
1—cylinder mould—36 x 82—rebuilt
1—soft rubber couch—18 x 100
2 soft rubber couch rolls—16 x 77
1—soft rubber couch roll—14 x 74

DECKERS—THICKENERS OR SAVE-ALLS—
1—Bird 43 x 72" with cast iron ends and wooden sides—felt wrapped couch.

DRIVES—1—Late model Westinghouse—150 HP motor—with Westinghouse parallel gear reducer outboard bearing and pulley—mounted common base—antifriction hearings—motor speed 1800 rpm—reducer ratio 5.3 to 1—motor is variable speed—220/440/60/3—used very little.
1—Terry reducer—450 HP—2475 rpm to 382.

DRIVES—VARIABLE SPEED—2 — Reeves enclosed drives—Size 9—Class F—antifriction—horizontal.
4—Reeves enclosed drives—size 1—Class E—antifriction—horizontal.
3—Reeves enclosed drives—size 2—Class E—antifriction—horizontal.
1—Llewellyn enclosed drive—equivalent size 2 Reeves—antifriction—horzontal.
1—Reeves vertical drive—enclosed type— antifriction—size 3—Class F.
1—PIV—HG2 drive—horizontal.
1—PIV—H-3 drive—horizontal.

DRUM REELS—1—Pusey & Jones Pope type reel—winds on one side only—with reel shafts—complete machine 215" wide.
1—Bagley Sewall antifriction reel—202" wide with reel shafts. Heavy duty constant speed type.
1—Beloit Aldrich Pope reel—36" dia. drum x 150 face—with several antifriction bearing reel shafts—winds on one side drum only.
Let us make you a low cost—excellent operating drum reel—wind one side only.

DRYERS—YANKEE—
1—10' dia. x 132 face Beloit dryer—good for 35 lb. steam pressure.
1—8' dia. x 152 face Pusey & Jones Yankee dryer—60 lb. steam pressure.

DRYERS—1—Copper covered baby dryer—24 x 116.
1—dryer—36 x 112
2—dryers—36 x 126.
2—dryers—36 x 132.
1—dryer—48 x 74.
3—dryers—48 x 102.
4—dryers—42 x 102.
3—dryers—48 x 128.
10—dryers—Black-Clawson seamless—48 x 90.
8—dryers—Pusey & Jones—48 x 94—frames—gears—bearings—steam joints.
10—dryers—48 x 134 with bearings.
1—dryer—48 x 138.
28—dryers—48 x 154.
12—dryers—48 x 160.
1—baby dryer—24 x 87¾.
18—dryers—48 x 149½.
34—dryers—36 x 80.

DRYER FRAMES— Stack frames—for 36" dryers—diagonally split bronze bushed bearings, gears, enough for 15 dryers.
3—deck dryer frames—36" dryers—enough for 20 dryers.

DRYER GEARS—50—dryer gears—for 60" dia. dryers—110 T—2" CP—70" PD—8" face—10½ B split hub.
Let us quote you on cut tooth dryer gears—made to specifications.

FRAMES—1—Set Beloit dual press frames—air operated—formerly used on 160 face press rolls—including suction press—SS Save-All pans—SS dr. blades—felt guide rolls, etc.
1—set Beloit size press stands—late model type.

FRICTION CALENDERS—3—3 roll Holyoke 36" friction calenders—now erected on main floor.

FORMING MACHINE—1—N & W board forming machine—2 cylinder—126" wide—late model.

GRINDERS—2—Three pocket Carthage pulp wood grinders—27 x 54 with Norton stones.

HEAT SEALING UNITS—4—Mayflower thermo heat sealing units—2.7 KW timing devices for setting mega-cycles—complete with air cylinders.

HOT-WELL TANKS—VACUUM UNITS—1 — Jennings D-10 condensate vacuum pump unit—60 gpm water—19 cfm air—10 lbs. 10" vacuum—1160 rpm—tests #42104—complete with base and tank but less motor.

HYDRAULIC PRESSES—2—HPM Presses—44 x 74—10" ram—54" daylight—down-stroke—with 6 gpm steam pump—2600 line pressure.
2—HPM 1200 ton hot plate presses—100" x 120"—15 openings—8 cylinders—upstroke—96" total daylight—3" between openings—200 p.s.i. with 200 HP motors and pump units—185 gpm—2600 lb. line pressure—automatic loaders and unloaders—full automatic conveyor systems—with suction cups—new 1954—operated 10 months—immediate delivery.

INFRA-RED HEATERS—6—Banks—44 heaters each bank—Infra-Red heaters with control equipment.

INLETS—1—90" Nielson slice.
1—84" Nielson slice.

JORDANS—HYDRAFINERS—REFINERS—ETC.
1—Mammoth Jr. Jordan—water cooled bearings—cast Behr filling.
1—Monarch Jordan—water cooled bearings.
1—New SS plug for Monarch Jordan—late type plug for all size fillings—new head and fillings also—¼" steel.
1—Horne #1 Jordan—water cooled bearings.
2—Dilts #1 hydrafiners—antifriction bearings—SS filling—1200 rpm.
2—Downingtown Wienerfiners—antifriction bearings—SS filling—one with 150 HP motor—1800 rpm.
1—#2 Claflin refiner.
1—Jones Imperial Jordan—antifriction bearings—direct drive—¾ steel filling—excellent condition.
2—Jones Imperial Jordans—same as above except water cooled bearings.

KNIFE GRINDER—1—72" Rogers knife grinder with motor drive.

MOTORS—1—150 HP synchronous motor for Jordan drive—440/60/3.
1—100 HP Westinghouse slip ring motor—type CW—2200/60/3—575 rpm.
1—150 HP GE — type I — 15A10 — 150 — 720 — 2200/60/3—705 rpm.
1—50 HP GE motor—220/60/3—1765 rpm.
1—75 HP GE slip ring—1170 rpm—440/60/3—serial #155900—Form B—type MT 347.
1—Milwaukee 110 HP DC motor—type A60—#4194—320 amps—250 volts—80 KW—550 rpm.
1—Westinghouse 200 HP drip proof motor—440/60/3—1800 rpm.
7—Westinghouse 125 HP synchronous motors—brand new—720 rpm—440/60/3—80% PF—shock proof with forced air ventilation—125 V excitation—separately excited, Type G—serial #10N4192, etc. Price $685.00 each—cost $3000.00 each when purchased.

MOTOR REDUCER UNITS—2—25 HP—440—60—3 motor reducer units.

90 TON BOARD MACHINE—2 Cylinder board machine 102"—Suction drum roll—Downingtown suction primary press—r. c.—main first press—Beloit suction second main press—61 dryers 42 x 102—2 calender stacks—reel—Langston rewinder with Shartle Brothers enclosed spiral bevel gear drives—late model turbine prime mover — all stock pumps — Jordans — beaters — vacuum pumps—etc.—still erected on foundation.

OLIVER VACUUM FILTERS—1—5'3" x 10'0" Oliver vacuum filter—Ser. #8049-R—steel tank—with 2 motors—440/60/3—good working order—Note: This filter located San Francisco.
1—5'3" x 6'0" Oliver vacuum filter—Ser. #2259—vat—lead lined—cylinder new in 1951—with motor drive—Reeves variable speed—good condition—Note: This filter located San Francisco.

PAPER MACHINE—1—156" Fourdrinier — Valley head box and inlet—table rolls 7" dia. r.c.—7 suction boxes—suction couch—26" dia. r.c. suction first press—second press reversed—40 dryers 48" dia.—7 roll calender stack—Pope reel—rewinder.

pH AUTOMATIC EQUIPMENT—FOR PAPER MACHINE—4—Units Leeds Northrup Automatic pH Control—complete with all auxiliary equipment—BRAND NEW—NEVER USED.

PLUNGER PUMPS—1—Beloit 10 x 20 triplex stock pump.
1—Shartle 10 x 20 single plunger stock pump.
3—Belcit type 6 x 12 duplex plunger stock pumps—bronze casings.
1—Shartle 10 x 20 triplex plunger pump.

PRESS ROLLS—2—Bronze press rolls—24" dia. x 114 face.
2—Same as above—except 24 x 116 face.
1—rubroc roll 18 x 77—8" dia. journals.
1—r.c. press roll 18 x 77—8" dia. journals.

PRESS SECTION—1 — Pusey Jones complete press section—with 2nd press reversed—r.c. bottom rolls—SS jacketed top rolls—99" face with 1 Falk right angle enclosed drive.

PRESSURE PUMPS FOR HYDRAULIC PRESSES—1—Northern Ordinance pump—centrifugal—53 gpm—1000 lb. pressure—size 5630—serial 372—525 rpm—displacement .1046—new 1951.
1—Northern Ordinance pump—53 gpm—1700 lbs. pressure—displacement .091—525 rpm.

PULPERS—1—Stapley pulper rotor for 10" dia. tank.
3—Rice Barton Size 8 dynopulpers—NEW 1952—with Dodge antifriction bearings and V-belt drives—54" dia. impellers—batch type—all steel tanks. Excellent condition.

PUMPS—1—Shartle agi-flow pump.
1—Allis Chalmers 4 stage pump—280 gpm—390' head.
1—Rebuilt non-ferrous Worthington stock pump—8000 gpm—94' head—1200 rpm—16" discharge x 20" suction.
1—Allis-Chalmers 6000 gpm—25' head—14 x 16—type SE.
2—American Marsh 300 gpm—100' head.
1—Foster starch pump—50 gmp—60' head—absolutely new.
1—Goulds 8" pump—Model 3075RH—200 gpm @ 160' head.
1—Frederick 6" pump—Model SSV-0—1000 gpm @ 65' head.

UNITED PAPER MACHINERY CORPORATION

Charles J. Dicarlo, Pres. **P. O. BOX 40, LOCKPORT, NEW YORK** *Telephone No. Lockport 4-8862*

PUMPS—VACUUM—2—Roots Connersville vacuum pumps size 14 x 20.
1—Roots Connersville 12 x 18 vacuum pump.
1—Nash #6 Hytor vacuum pump.

RAG CUTTERS—2—Giant #36 Tamden rag cutters with conveyors—late model units—like new—used approximately 48 hours—require 20 HP for operation—excellent condition.

REDUCER DRIVES—1—Black-Clawson—right angle—spiral bevel gear drive—Model S00—with air-flex clutch—cone pulley—all mounted common base—rated 83 HP @ 300 rpm— ratio 1½ to 1.
3—Foote Brothers right angle reducer drives—4 to 1 ratio—25 HP @ 300 rpm—with cone pulleys and clutches.

REWINDERS—1—Cameron #19 slitter-rewinder—drums 15 x 156. Rewinds to 60" dia. Score cut slitters.
1—M & W rewinder—heavy duty type—drum 15 x 158—roll lift—shear cut slitters—unwind stands.
1—M & W rewinder—heavy duty type—drum 18 x 151—roll lift—shear cut slitters.
1—New Bagley Sewall 2 drum rewinder—drum 6" x 96"—air-operated score cut slitters.
1—Bagley Sewall Warren winder—94" wide—shear cut slitters—60" rewind.
2—Waldron to drum slitter-rewinders—rebuilt machines—drums 10" x 84"—chevron grooving—driven rider roll—counter-balanced rider roll—shear cut slitters in front position—special throw mechanism for slitters—48" rewind.
1—Fales 2 drum rewinder—drum 5" x 42"—driven rider roll—unwind stands—3 HP motor drive—18" rewind.
5—Hobbs duplex rewinders—30" to 42" wide.

ROLLS—30—table rolls—r.c.7" x 161" face.
41—rolls—r.c.—10" x 160 face.
1—Breast roll—24 x 158 face.
1—Breast roll—20 x 122 face.
1—Breast roll—14 x 92 face.
1—rubber press roll—24 x 124
1—rubber press roll—24 x 120
6—r.c. press rolls—14 x 74
7—primary press rolls—135 & 136" face—dia. from 14 and 16" dia.

ROLL GRINDER—1—Farrell roll grinder—takes rolls 18" x 144"—crowning device—15 HP motor with Reeves variable speed—10" dia. grinding wheel driven by 5 HP motor.

ROTARY SHEET CUTTERS—1—Beloit 90" single knife sheeter—shear cut slitters.
1—Meisel 72" single knife sheet cutter.
1—Beloit 104" duplex sheet cutter with slitters—variable speed knife drives.
1—Beloit 94" duplex sheet cutter with slitters—PIV's on knives.
1—Downingtown 107" duplex sheet cutter with slitters.
1—Downingtown 112" duplex sheet cutter with slitters.

SCALES—1—12,000 lb. Fairbanks-Morse dial scale with platform—good condition—$1350.00, fob, Lockport.

SCREENS—12—12 plate IMPCO—bronze vat—flat screens—antifriction bearings throughout—Dunbar drives—SS screen plates—8 cut.
7—3A—100 Bird screens—copper vats—SS—12 cut plates—complete with shower pipes, motors, drives, non-ferrous contact with stock—dual motors—excellent condition.
2—Trimbley Sr. pulp screens—non-ferrous construction throughout.
1—Valley Iron Works centifugal ground wood screen.
2—12 plate IMPCO flat screens with Dunbar drives—wood vats.
1—4 plate Sandy Hill roller shoe tailing screen.

SCREEN PLATES—218—SS screen plates for flat screens—12 x 43—10 to 12 cut—slots 2" long—5 slots per inch.

SHREDDERS — OR HOGS — 1 — Carthage pulp shredder.
1—Jeffrey swing hammer hog or shredder—large capacity—heavy duty—antifriction unit—serial #3537—42 x 48—type 82—6" dia. shaft.

SLITTERS—2—Maier 126"—2 bar—6 pair of slitters—new 1954.

SMOOTHING PRESS—1—New Hudson Sharp 72" smoothing press.

STEAM TURBINE—1—Constant speed Elliott steam turbine, 75 HP—4000 rpm—speed reducer direct connected to turbine, 800 rpm output—250 lb. steam inlet—25 lb. back pressure.

SUCTION ROLLS—2—30" dia. suction couch rolls—162" drill face.
2—30" dia. suction press rolls—162" drill face.
2—28" dia. r.c. suction press rolls 162" drill face with 25" dia. granite top press rolls—stands.
1—30" dia. brass Downingtown suction drum roll—130" drill face—antifriction—21" wide box.
1—25" dia. Beloit suction drum roll—25" dia. x 92 drill face—antifriction—17" box.
1—20" dia. r.c. suction drum roll—Downingtown—2 suction boxes—137" drill face.
1—25" dia. suction couch roll—172" drill face.
1—22" dia. Beloit suction couch—cantilever roll x 115" drill face—antifriction.
1—18" dia. suction couch—168 drill face.
1—18" dia. suction couch—112 drill face.
1—18" dia. suction couch—92 drill face.
1—14-9/16 drill face suction press—112 drill face.
1—14-9/16 drill face suction press roll—96 drill face.
1—14-9/16 drill face suction ccuch—92 drill face.

SUCTION DRUM ROLL—1—Downingtown suction drum roll—130" drill face—shell 136" face—153" center to center of bearings. Suction roll has 21" wide suction box—antifriction bearing. Shell 1½" thick. Manufactured 1948—had approximately seven years service—good condition.

TANKS OR CHESTS— 2—CI chests, 12' dia. x 12' deep—open top—heavy CI sections—similar to hydrapulper tubs—made by Pusey and Jones.

TISSUE MACHINES — VERY LOW COST — 1 — Yankee Fourdrinier—wire 114" x 34'10" with 6'0" Yankee dryer—antifriction throughout—complete on foundations—runs 600 fpm—50 lb. steam pressure.
1—Cylinder Yankee machine—antifriction—on foundations—with 6'0" Yankee dryer—operated 350 fpm—50 lb. steam pressure.

UPRIGHT REELS—2—Beloit 2 drum upright reels—116 face—with drives.
1—87" 2 drum upright reel.

VACUUM PUMPS—1—Nash L-7 vacuum pump.
1—Nash #8 Hytor flat-sided pump.
1—Nash #6 Hytor flat-sided pump.
1—Nash L-5 vacuum pump.

VAT—1—48 x 99½ heavy duty cylinder mould with CI end vat—r.c. couch roll—all antifriction—plus spare cylinder and couch.

VERTICAL AGITATOR REDUCERS—2—Philadelphia size 1400 type VTS vertical reducers—32 HP—30 to 1 ratio—motor bases.

WELDER—1—300A welder—440/25/2.

WET MACHINES—1—Wet machine with cylinder 36 x 96 face.
5—Appleton wet machines—cylinders 36 x 86—automatic knife cut-off—iron bed rolls—22" dia. making rolls—all metal felt carrying rolls.
2—Rogers wet machines—cylinders 36 x 72.
3—Noble & Wood wet machines—cylinders 36 x 60. Heavy duty machines.

FOURDRINIER MACHINE FOR SALE

The following items describe a fine machine which is presently set up on foundation. This machine is a 164" Fourdrinier with a drying capacity of 125-150 tons/day.

CONSTANT HEAD SUPPLY SYSTEM—stainless steel piping.
Overflow gravity feed tank for pulp supply, stainless steel.
Venturi mixer for pulp and dilution water, stainless steel.
Flow box supply header, eight distribution outlets to flow box, stainless steel.

FLOW BOX — hydrodynamically designed vat with vertically adjustable flow plug, stainless steel lined, mild steel frame.

SLICE—adjustable vertically, adjusting jacks across slice lip, stainless steel lined, mild steel frame.

FOURDRINIER—Pusey-Jones, cast iron frame.
Wire—164" x 80'. Ryertex water deflector at 20th table roll.
Breast roll—18" dia. x 168" face, brass, antifriction brg., Ryertex doctor.
Table rolls—10, 6⅜" dia. x 14'-7¼" face, rubber-covered, antifriction brg. 16, 7⅜" dia. x 14'-7¼" face, rubber-covered, antifriction brg. and 1, 6¾" dia. x 14'-7¼" face, rubber-covered, antifriction brg. 3, brass table rolls 5½" dia.
Suction boxes—5, phenolic impregnated covers, 5/8" dia. holes at 1" centers, six rows staggered, 8" face.
Dandy rolls—2, 16⅛" dia. x 13'-11" face, antifriction brg. on stub shafts.
Guide roll—10-9/16" dia. x 14'-4"face, brass, antifriction brg., automatic mechanical wire guide.
Rubber covered wire carrying rolls on antifriction bearings.
Wire shake—Beloit heavy duty shake, on first 20 table rolls, variable throw, fixed speed, antifriction brg. Drive—7½ H.P., 1755 rpm motor, 6¾" O.D.: 23" O.D., 4'8" V-belt reduction.
Saveall pans, stainless steel.

SUCTION COUCH— Top roll—14⅜" dia. x 14'-8¼" face, r.c., antifriction brg.; 4½" dia. x 2" stroke, 100 p.s.i. air cylinder for loading each side of roll.
Bottom roll—25" dia. x 14'-10" face, brass, 5/16" dia. holes at 9/16" centers, 14'-1⅞" hole face width, trunnion brg.

1ST PRESS—Top roll—24" dia. x 158" face, C. I., water-cooled brass brg., Ryertex doctor, 165:1 mult. factor on press weights, Helper drive.
Bottom roll—26" dia. x 158 F, r.c., water cooled brass brg. Black-Clawson spiral bevel reducer, 21:1 ratio, 4 jaw coupling to roll, sleeve brg.
Helper drive generator—G. E. reducer generator, 5 HP, 1150/2300 rpm, 9.2:1 ratio, 125/250 RPM out—15T:78T, 1¼P roller chain reduction.
Felt rolls—6, 8½" dia. x 14'-4" face, steel, cup brg.
Worm rolls—2, 9-3/16" dia. x 14'-4" face, r.c., 2" wide double worm at 12" pitch, 5/16" raised worm.
Felt conditioner—Vickery, 3 units.

2ND PRESS—Top roll—24" dia. x 158" face, C. I., water cooled brass brg., Ryertex doctor, 165:1 mult. factor on press weights.
Bottom roll—25" dia x 158" face, r.c., water cooled brass brg.
Felt rolls—6, 8½" dia. x 14'-4" face, steel, coated antifriction brg.
Worm roll—9-3/16" dia., x 14'-4" face, r.c., 2" wide double worm at 12" pitch, 5/16" raised worm.

PREDRYERS—cast iron
Dryers—2, 48" dia. x 13'-4" face, brass brg., 60 PSI steam.

3RD PRESS—Top roll—24" dia. x 158" face, cast iron water cooled brass bgr., doctor, 165:1 mult. factor on press weights.
Bottom roll—26" dia. x 158" face, rubber covered, water cooled brass brg.
Felt rolls—7, 8½" dia. x 14'-4" face, steel cup brg.
Worm roll—9-3/16" dia. x 14'-4" face, rubber covered, 2" wide double worm at 12" pitch, 5/16" raised worm. Bed plate centers—15'-4".

1ST SECTION DRYING ROLLS — C.I. frame, three high.
Dryers—37, 48" dia. x 13'-4¼" face, Bagley Sewall, 30 P.S.I., brass brg. 12—Dryers in bottom layer, 13 in middle layer, 12 in top layer.

2ND SECTION DRYING ROLLS — C.I. frame, two high.
Dryers—21, 48" dia. x 13'-4¼" face, Bagley Sewall, 30 P.S.I., brass brg.

CUTTER—Black Clawson 156" knife.
Knife speed adjustment drive—size V-5 P.I.V. unit, Link Belt, 2:1 ratio, 580 RPM input, 820:410 RPM output—roller chain drives.

LINESHAFT DRIVE—15 x 14 Robb-Armstrong horizontal steam engine, #2064, 1897—66" dia. x 25" F flywheel:100" dia. x 20" F to pulley countershaft, —60" dia. x 25" F:78½" dia. x 25" F pulley drive to lineshaft.

DRYERS AIR SUPPLY FANS & HEATERS—1st Basement Fan & Heater—size 12, design 3, #C-728 Sturtevant fan with Sturtevant heater, sleeve brg. Drive—20 HP, 850 RPM motor—8⅝" O.D.:29½" O.D., 7'C' V-belt drive.
2nd Basement Fan & Heater—size 10, design 3, #C-729, Sturtevant fan with Sturtevant heater, sleeve brg. Drive—40 HP, 1750 RPM motor—12" O.D.: 48¾" O.D., 4'C' V-belt drive.

DRYERS HOOD—light steel frame with inner and outer layers of asbestos cement sheets, 3 outlet vents to roof

UNITED PAPER MACHINERY CORPORATION

Charles J. Dicarlo, Pres. — **P. O. BOX 40, LOCKPORT, NEW YORK** — *Telephone No. Lockport 4-8862*

Help Wanted

MASTER MECHANIC

A paperboard manufacturing plant of a large national organization seeks a master mechanic with a practical background in all phases of paper mill maintenance. Must be an ambitious, capable supervisor. Mill located in suburban New Jersey area. Please send resume including salary requirement to Box 58-305 care Paper Trade Journal. D-22

MACHINE TENDER

Suburban N. J. Paper Mill has opening for a man with machine tender experience on a cylinder machine. Applicant must be qualified to handle any position on the machine. Good opportunity for future growth. Address reply to Box 58-322, care Paper Trade Journal. D-15

WANTED

Graduate Mechanical Engineer.
Minimum 3 years' paper mill experience.
Familiarity with bleaching operations desirable.
Excellent opportunity and benefits.
Salary negotiable depending on experience.
Send full resume of experience to Box 58-319, care Paper Trade Journal. D-15

WANTED

TOUR BOSSES
MACHINE TENDERS
MILLWRIGHTS
One Machine Board Mill.
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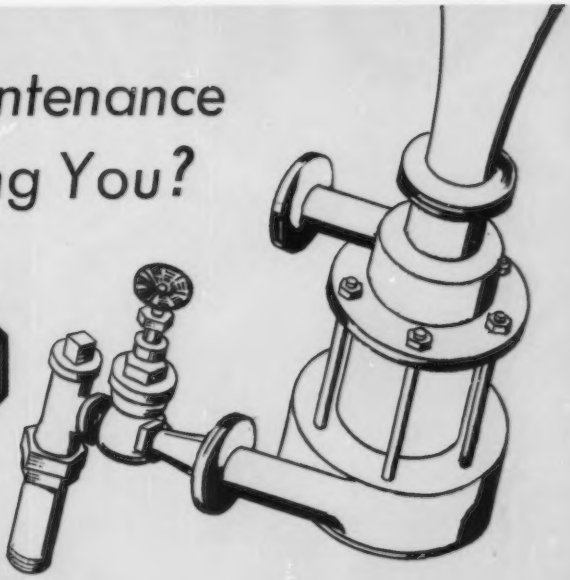

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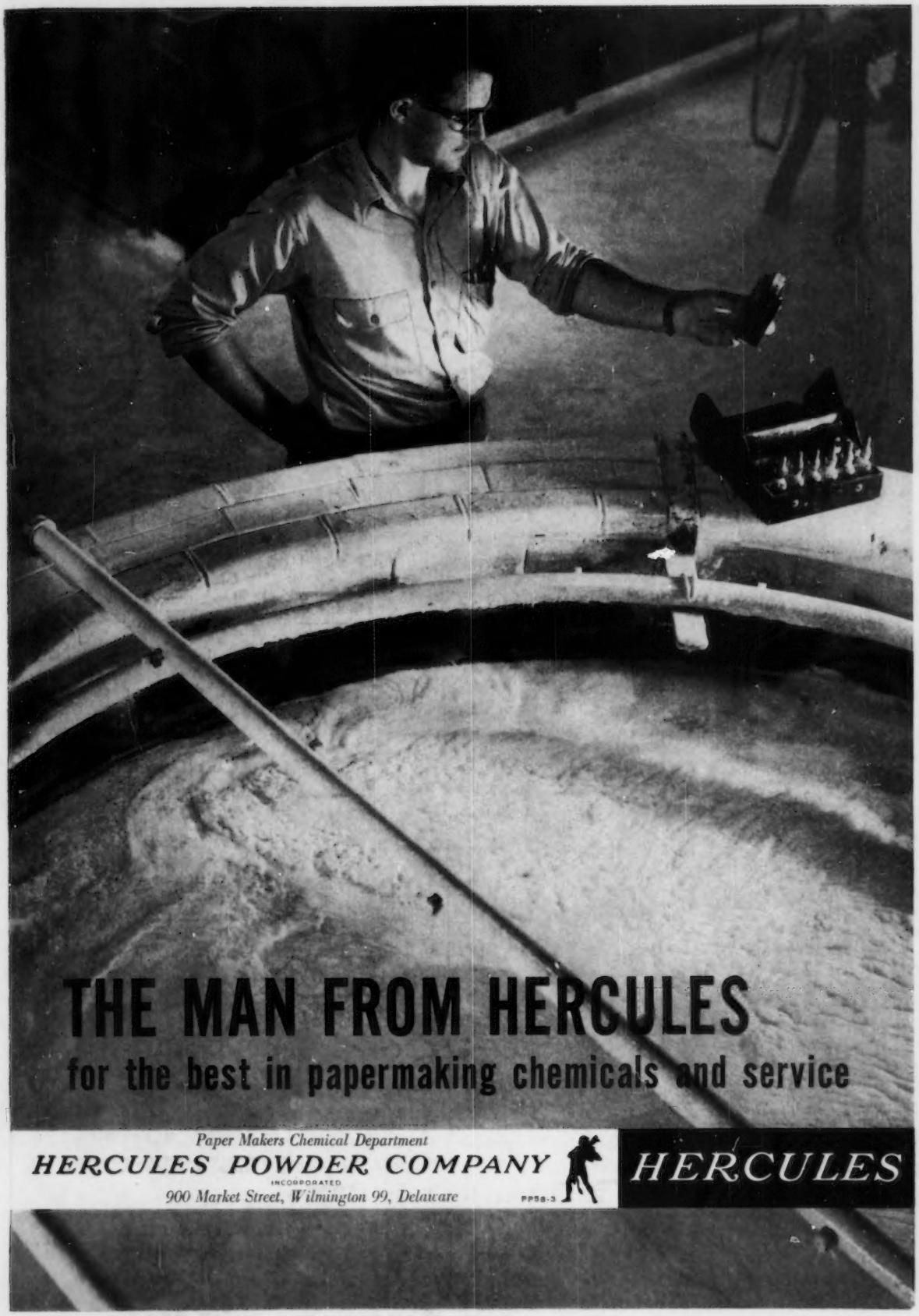

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